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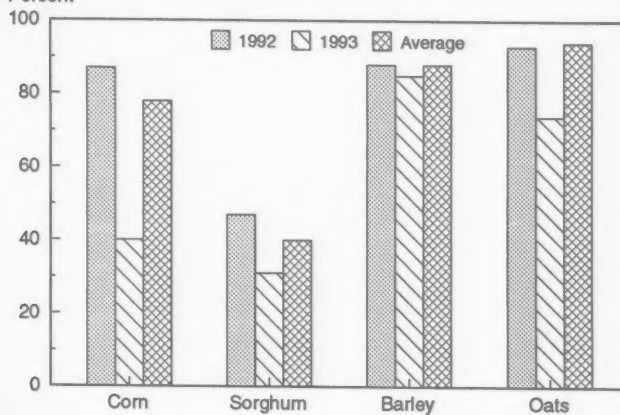
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May 1993

Feed

Situation and Outlook Report

Mid-May Planting Progress Lags Historic Pace

Percent



Contents

Summary	3
Feed Grain Supply and Use	4
Corn	5
Sorghum	7
Barley	8
Oats	9
Hay	11
Feed Demand	12
Food, Seed, and Industrial Uses of Corn	13
Transportation Update	15
World Coarse Grain Outlook	18
Special Article	
Prospects for Corn and Sorghum Under NAFTA	24
List of Tables and Figures	29

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Summary

Lower Acreage and Yields To Reduce U.S. Feed Grain Output in 1993/94

U.S. feed grain production in 1993/94 is projected to decline nearly 30 million tons to 245 million due to lower area and yields. Harvested area is expected to decline 5.5 percent and yields are expected to decline an average of 6.6 percent. Projected yields for feed grains are based on historic trends which are below last year's record for each crop.

Feed grain supplies are projected to remain above 300 million tons, as higher forecast carry-in stocks will about offset lower projected 1993/94 production. With continued large supplies, feed grain prices are expected to average near year-earlier levels. The season-average corn prices received by farmers are projected to average between \$1.85 and \$2.25 per bushel in 1993/94, compared to the 1992/93 estimate of \$2.00 to \$2.15 per bushel.

Higher domestic feed grain use is supported by larger livestock inventories, while larger use of ethanol during the 1993/94 winter oxygenate program is expected to boost food, seed, and industrial use. However, weaker world export demand is expected to reduce U.S. exports. As a result, total disappearance of feed grains for 1993/94 is slightly below the 1992/93 record.

According to the *Prospective Plantings* report, corn farmers intend to plant 76.5 million acres of corn in 1993/94, down 4.6 percent from last year. A 5-percent higher set-aside requirement is largely responsible for the lower planting intentions. With a normal harvest-to-planting relationship and a trend yield of 122.7 bushels per acre, corn production is projected to decline nearly 1 billion bushels from last year's record output of 9.479 billion bushels.

The cool, wet conditions in major grain producing regions last summer hampered harvest last fall and winter and

have continued this spring. As a result, field work and spring planting are well behind the average pace. On May 16, only 40 percent of the corn crop had been planted, compared to the previous 5-year average of 78 percent. Oats plantings of 51 percent is also well behind the average of 86 percent. Sorghum and barley plantings are lagging behind to a lesser extent, with 31 and 66 percent planted compared with 40 and 75 percent on average, respectively.

Global coarse grain production in 1993/94 is projected to decline 4 percent from the record high of 1992/93, mainly due to lower U.S. production. Global use of coarse grain is expected

to rise marginally in 1993/94, outstripping production and leading to some reduction in world ending stocks. For 1993/94, U.S. corn exports are projected to decline to 1,550 million bushels. A recovery in production in many countries, continued competition from feed-quality wheat in South Korea, and further weakening in imports by the FSU account for the projected drop in U.S. exports and global trade.

FEED GRAIN SUMMARY

Year 1/	89/90	90/91	91/92	92/93	93/94	Record prod. 2/ 92/93	Lowest stocks 2/ 75/76
TOTAL FEED GRAINS					Million acres	Million acres	
Planted	106.1	103.4	104.6	108.4	103.5	108.4	122.6
Harvested	91.0	89.5	91.9	96.1	90.8	96.1	104.7
Yield (ton/ac)	2.43	2.57	2.38	2.89	2.70	2.89	1.77
					Million tons	Million tons	
Beg. stocks	65.9	45.5	47.7	34.0	63.3	34.0	21.1
Production	221.0	230.5	218.4	277.4	245.0	277.4	185.1
Supply	288.2	277.3	268.2	312.5	309.8	312.5	206.5
Dom. Disp.	173.0	178.1	184.5	196.6	199.8	196.6	133.7
FSI	40.3	40.7	42.7	43.6	45.0	43.6	17.9
Feed/res.	132.7	137.5	141.8	153.0	154.8	153.0	115.8
Exports	69.7	51.5	49.7	52.6	48.2	52.6	48.8
End. stocks	45.5	47.7	34.0	63.3	61.9	63.3	23.9

SECTOR	Corn		Sorghum		Barley		Oats	
Year 1/	92/93	93/94	92/93	93/94	92/93	93/94	92/93	93/94
					Million acres			
Planted	79.3	76.5	13.3	11.2	7.8	7.7	8.0	8.1
Harvested	72.1	69.3	12.2	10.0	7.3	7.1	4.5	4.4
Yield (bu/ac)	131.4	122.7	72.8	66.0	62.4	57.0	65.6	55.5
					Million bushels			
Beg. stocks	1,100	2,113	53	180	129	157	128	111
Production	9,479	8,500	884	660	456	405	295	245
Supply	10,583	10,618	937	840	597	582	472	421
Dom. disp.	6,745	6,950	483	433	360	355	355	310
FSI	1,495	1,550	8	8	165	165	125	125
Feed/res.	5,250	5,400	475	425	195	190	230	185
Exports	1,725	1,550	275	275	80	80	6	5
End. stocks	2,113	2,118	180	132	157	147	111	106
Stocks-use ratio, %	25	25	24	19	36	34	31	34
Avg. farm price, \$/bu	2.00-2.15	1.85-2.25	1.80-1.95	1.70-2.20	2.03	1.85-2.25	1.33	1.15-1.55

1/ Corn and sorghum, September/August; barley and oats, June/May.
2/ Based on data since 1975/76.

Feed Grain Output Projected To Drop 12 Percent in 1993/94

A 5.5-percent reduction in harvested area and a 6.6-percent drop in average yields are projected to reduce 1993/94 feed grain output to 245 million tons, down from 277 million in 1992/93.

Feed Grain Area Expected To Decline in 1993/94

USDA's survey of farmers' planting intentions during early March indicated that farmers are expected to reduce 1993/94 feed grain plantings by 4.9 million acres to 103.5 million. Lower corn and sorghum plantings account for most of this decline, with corn area off 2.8 million acres and sorghum down 2.1 million. Barley plantings and oats harvested area are expected to decline 0.1 million acres.

Lower corn plantings are due primarily to a higher USDA set-aside requirement for program participants. The acreage reduction program's (ARP) percentage was increased to 10 percent from 5 percent for 1992/93. Lower sorghum plantings are also expected in 1993/94. This is primarily because over 1 million acres of sorghum were planted on abandoned cotton acreage in Texas last year, but the acreage is not expected to be planted to sorghum this year. However, other factors, such as relative crop returns, crop rotations, and so forth, may also contribute to lower sorghum planting as the ARP remained unchanged at 5 percent. Lower expected returns to barley in major barley producing States, relative to other crops, was likely a major factor contributing to farmers' lower barley planting intentions, as a lower ARP permits program participants to increase plantings.

Historical relationships between planted and harvested area are assumed for corn, sorghum, and barley. Farmers' harvesting intentions for oats were surveyed in March. Harvested feed grain area is projected at 90.8 million acres, down 4.9 million from last year.

Feed Grain Supplies Projected To Remain Large

Yields for 1993/94 are projected to fall closer to historical trend levels from record levels in 1992/93. Based on projected harvested area and trend yields for each crop, an average feed grain yield of 2.7 tons per acre is expected for 1993/94. Thus, feed grain output is projected at 245 million tons, down 32.4 million from 1992/93. Because carry-in stocks are forecast up 29.3 million tons, feed grain supplies are forecast at 310 million tons, 2.7 million below last year's large supplies.

With continued large supplies, feed grain prices are expected to remain near their 1992/93 levels. The season-average price received by farmers for corn is projected to average \$1.85 to \$2.25 per bushel, compared with the 1992/93 forecast of \$2.00 to \$2.15.

Planting Progress Is Slow

The cool, wet conditions in the major crop producing regions last summer persisted through harvest last fall and have continued into this spring's planting season. As of May 16, corn planting in the major producing States is only 40 percent complete, compared with 87 percent last year and the previous 5-year average of 78 percent. Oats planting is also well behind the average of 86 percent. Sorghum and barley plantings of 31 and 66 percent are only 9 percentage points behind the 5-year average.

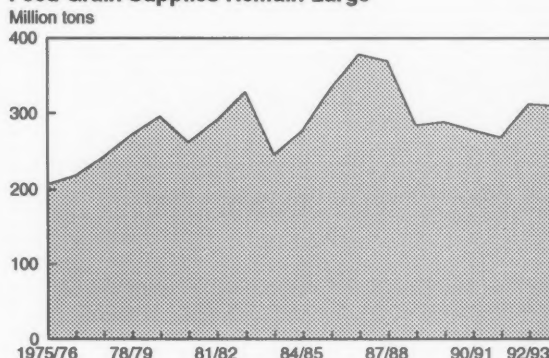
Feed Grain Use Projected To Plateau in 1993/94

Total disappearance of the four feed grains is projected at 248 million tons, about the same as the 1992/93 forecast. Domestic use is projected to expand with lower exports offsetting these gains. Some growth in livestock inventories and favorable feed prices are expected to support some gain in feed and residual use. Food, seed, and industrial (FSI) uses, particularly for corn, are expected to increase over 3 percent to 45 million tons. Higher output of fuel alcohol is a major factor in the FSI growth.

The prospects for feed grain exports in 1993/94 point to lower shipments. A recovery in South African corn production in 1992/93, and a return to normal feed grain production in Eastern Europe in 1993/94, are expected to reduce world coarse grain trade. With a 57 percent market share, U.S. feed grain exports are projected at 48 million tons, down nearly 4.5 million from 1992/93.

Figure 1

Feed Grain Supplies Remain Large



With 1993/94 feed grain supplies and total disappearance expected to be about the same as in 1992/93, carry-out stocks of 62 million tons are little changed from a year ago.

Farmers Pledge 375 Million Bushels of 1992 Feed Grain Crops to Farmer-Owned Reserve

Farmers intentions to enter 1992-crop feed grain in the Farmer-Owned Reserve (FOR) were announced on May 12. Producers intend to enter 374.5 million bushels compared to a maximum of 900 million. Of this amount 351.5 million bushels were corn, 13.3 million sorghum, and 9.7 million barley. Several factors likely limited signup, including average farm prices that are well above loan rates, low crop quality--particularly for corn, and the cost of storage during

the regular 9-month loan period. Although producers intend to place this grain in the FOR, they are not obligated to do so.

With the relatively low amount of feed grains reserved for entry into the FOR, little impact is expected on farm prices. In addition, producers may sell grain stored in the FOR at anytime, as no market price restrictions are placed on withdrawals. However, if farm prices are 95 percent of their target price, storage payments will be discontinued. If farm prices reach 105 percent, interest payments will be charge on the loans.

[Tom Tice, (202) 219-0840]

Corn Production Expected To Drop Nearly 1 Billion Bushels in 1993/94

Lower planting intentions and expected yields will combine to reduce projected 1993/94 corn output 10 percent to 8.5 billion bushels.

Farmers indicated they intended to plant 76.5 acres to corn in 1993/94, down 4.6 percent from actual 1992 plantings. Of the top 10 producing States, only Missouri farmers intended to plant as much corn in 1992/93. Larger corn area in Texas, Oklahoma, and Kansas were likely encouraged by favorable soil moisture conditions. Winter precipitation in these States was 150 to 200 percent of normal, based on preliminary data provided by the Climate Analysis Center, National Oceanographic and Atmospheric Administration.

In the major corn-producing States, winter precipitation was 100-150 percent of normal throughout most of the region. Precipitation in March and April have continued to be above normal as well. On April 17, 1993, the Long Term Palmer Index exceeded 2.0 in most of the crop districts where corn is grown in the major producing States. An index of 2.0 indicates an unusually moist period, with surplus surface and subsoil moisture.

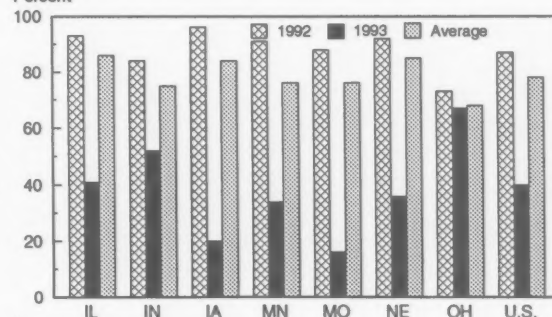
Above-average precipitation last winter and so far this spring should provide a good start for plant growth. However, wet conditions have hampered field work, and corn planting is well behind normal in most areas. As of May 16 only 40 percent of the corn crop had been planted in the 17 major producing States, compared to the average of 78 percent. Producers in the 10 major corn producing States will begin to switch to short-season corn hybrids by the end of May. If planting extends into June, most producers will be planting short-season varieties which generally produce lower average yields than longer-season varieties.

Corn Supplies Projected in Excess of 10 Billion Bushels in 1993/94

Although 1993/94 corn production is expected to drop, corn supplies are projected to remain above 10 million bushels. Larger carry-in stocks are expected to offset the lower production. Corn stocks on September 1, 1993, are projected at 2.1 billion bushels, up 1 billion from a year earlier.

Large 1993/94 corn supplies are expected to keep average farm prices near 1992/93 prices. The season-average corn price received by farmers is forecast to average \$1.85 to \$2.25 per bushel in 1993/94, compared with \$2.00 to \$2.15 forecast for 1992/93.

Figure 2
Corn Planting Progress Through May 16¹
Percent



¹ U.S. figures are for 17 major States.

Corn Demand Expected To Increase Slightly

With the 1993/94 season-average corn price projected near 1992/93 prices, feed costs for livestock producers are expected to remain below the 1988/89 to 1991/92 period, when corn prices averaged between \$2.28 and \$2.54 per bushel. Stable grain prices are supporting continued cyclical expansion in livestock inventories, providing the impetus for larger use. Feed and residual use of corn is projected to reach a record 5.4 billion bushels in 1993/94, compared with the 5.25 billion forecast for 1992/93.

FSI use of corn is expected to rise more than 3 percent in 1993/94 to 1.55 billion bushels. Most of this growth is expected from higher fuel-alcohol and corn-sweetener production. (See the FSI section for more detail.)

While domestic use of corn is projected higher in 1993/94, corn exports are expected to decline. Production in Eastern Europe is expected to rebound from last year's drought, and higher output from the current harvest in southern Africa and stronger competition from feed-quality wheat in the South Korean market point to lower shipments of corn to these regions in 1993/94. Little or no growth is expected in other major U.S. markets. Thus, 1993/94 corn exports are projected at 1.55 billion bushels, down from the 1.725 billion forecast for 1992/93.

Total disappearance of corn is expected to reach 8.5 billion bushels in 1993/94, up less than 50 million from 1992/93. Because disappearance is about the same as production plus imports, ending corn stocks are forecast at 2.1 billion bushels.

Disappearance in 1992/93 Higher Through February

Through the first half of the 1992/93 marketing year, utilization of corn has increased markedly from a year earlier. A

record feed and residual use of 3.2 billion bushels was indicated for September 1992 through February 1993, up 9.1 percent from the same period a year ago. Larger livestock inventories, lower quality corn, and colder winter weather contributed to the greater disappearance.

FSI use of corn during the first 6 months of 1992/93 also set a new record, 710 million bushels, up 2.4 percent from a year ago. This growth was supported by larger ethanol production used as an oxygenate and octane enhancement in motor fuels. The 1990 Clean Air Act required northern cities to add oxygenates to gasoline during the winter months starting in November 1992.

Corn exports have also experienced strong growth in 1992/93. Through February, corn exports, as reported by the Bureau of the Census, reached 951 million bushels, up 21.4 percent from a year earlier. Shipments are up in many regions but most notably in the Middle East, Africa, and the Western Hemisphere.

Prices Continue To Lag Behind

Although disappearance of corn in 1992/93 is at a record high, the larger supply and lower quality have meant lower prices. The 5-month average farm price for 1992/93 was \$2.34 per bushel, compared with \$2.02 for 1991/92. Prices through the remainder of the marketing year will be sensitive to weather that affects planting progress and development of the 1993 crop. Normally, farm prices can be expected to peak in the spring, then decline through the summer months if average weather occurs.

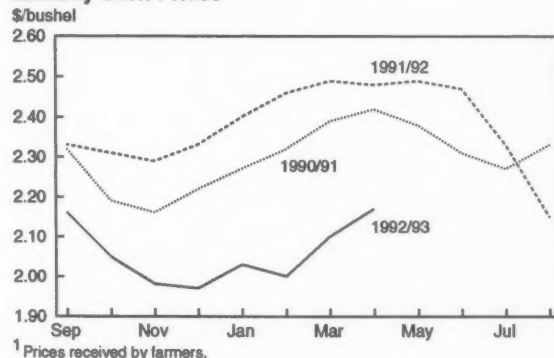
[Tom Tice, (202) 219-0840]

Table 1--Corn supply, disappearance, and stocks, September-February

Item	1991/92	1992/93
Million bushels		
Supply:		
Beginning stocks, Sept. 1	1,521.2	1,100.3
Production	7,475.5	9,478.9
Imports	19.6	2.3
Total	9,007.6	10,581.5
Disappearance:		
FSI 1/	693.1	350.1
Feed & residual	2,970.6	3,242.4
Exports	783.0	950.5
Total	4,446.6	4,902.9
Ending stocks, March 1	4,561.0	5,678.6

1/ FSI = Feed, seed, and industrial.

Figure 3
Monthly Corn Prices¹



¹ Prices received by farmers.

Sorghum Production Projected To Plummet in 1993/94

A sharp drop in sorghum planting and lower yields are expected to reduce sorghum production by 25 percent to 660 million bushels.

Although the ARP for sorghum remained at 5 percent for 1993/94, producers intend to reduce plantings by 2.1 million acres this year to 11.2 million. Most of the reduction in planted area is expected in Texas. Last year Texas producers planted over 1 million acres of sorghum on abandoned cotton acres. Texas producers indicated intentions to plant 3.30 million acres this spring, down from 4.75 million in 1992/93. Sorghum producers in Kansas intend to plant the same area as a year ago, 3.3 million acres.

Planting progress of sorghum is also behind average, but to a lesser extent than corn. Sorghum planting as of May 16 is estimated at 31 percent, compared with the previous 5-year average of 40 percent. Planting in Texas is most advanced at 71 percent, slightly ahead of the average pace of 68 percent. Planting in Kansas and Nebraska is estimated at 4 and 1 percent, well behind the average of 15 and 22 percent, respectively.

Sorghum producers have harvested an average of 89 percent of the planted area during the last 3 years. If producers harvest the same proportion in 1993/94, 10.0 million acres of sorghum would be harvested. With average sorghum yields for 1993/94 expected to drop to a trend level of 66 bushels, sorghum production is projected at 660 million bushels, down 25 percent from 1992/93. Carry-in stocks for 1993/94 are forecast at 180 million bushels, up over 125 million from record-low stocks on September 1, 1992. This will partially offset lower projected 1993/94 production. As a result, sorghum supplies are projected at 840 million bushels, about 100 million below 1992/93 supplies.

Sorghum Use Expected To Decline in 1993/94

Lower projected sorghum supplies will limit use in 1993/94, although average prices received by farmers are expected to

remain the 1992/93 level. Stable export demand from Mexico and Japan is expected to support exports at 275 million bushels, unchanged from last year. Feed and residual use, projected at 425 million bushels, is down 50 million. Therefore, total use is projected to decline 50 million bushels to 708 million.

Because total sorghum use is projected to exceed production, carry-out stocks for 1993/94 are expected to decline. Carry-out stocks, projected at 132 million bushels, will be down nearly 50 million. Sorghum prices received by farmers are forecast to average \$1.70 to \$2.20 per bushel, compared with the 1992/93 forecast of \$1.80 to \$1.95.

Large Supplies Stimulate Higher Use in 1992/93

Larger supplies of sorghum in 1992/93 and lower prices have combined to stimulate larger use. Through the first two quarters of 1992/93, that ended March 1, feed and residual use was estimated at 342 million bushels, up over 20 million from the same period a year earlier. Exports of 158 million bushels were only slightly higher than a year earlier.

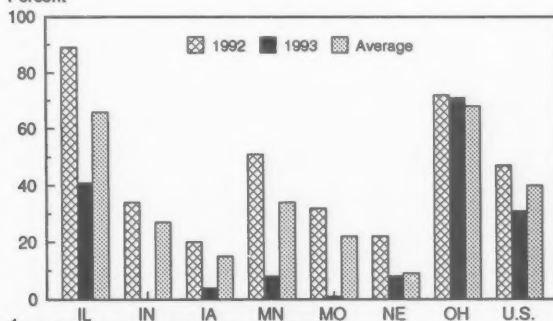
For the last half of the current marketing year, feed and residual use is expected to exceed 130 million bushels. This is more than double the 1991/92 level, when record-low stocks and strong export demand restricted feed use during the last half of the marketing year. In contrast, weaker export prospects to Mexico for the last half of 1992/93 are expected to limit marketing-year exports to 275 million bushels, down from 292 million for 1991/92. Total sorghum disappearance is forecast to reach 758 million bushels, up from 654 million during 1991/92.

Even though sorghum use is increasing in 1992/93, ending stocks are expected to rise sharply. Given ample ending

Figure 4

Sorghum Planting Progress Through May 16¹

Percent



¹ U.S. figures are for 12 major producing States.

Table 2--Sorghum supply, disappearance, and stocks, September-February

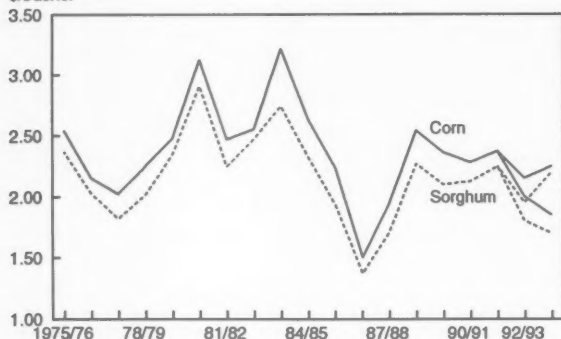
Item	1991/92	1992/93
Million bushels		
Supply:		
Beginning stocks, Sept. 1	142.6	53.2
Production	584.9	884.0
Total	727.4	937.2
Disappearance:		
FSI 1/	3.8	3.3
Feed & residual	317.7	341.7
Exports	154.7	157.9
Total	476.2	502.9
Ending stocks, March 1	251.2	434.3

1/ FSI = Feed, seed, and industrial.

Figure 5

Season-Average Farm Prices

\$/bushel



stocks, sorghum prices are expected to decline in absolute terms and in relation to corn. During 1991/92, the average sorghum prices received by farmers were 95 percent of farm prices for corn. For 1992/93, farm sorghum prices are forecast to average between \$1.80 and \$1.95 per bushel, down from \$2.25 per bushel in 1991/92. Average prices received by farmers were about 90 to 91 percent of corn prices.

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Barley Planting Intentions Down in 1993

The Prospective Plantings report, issued by USDA in March, indicated that farmers intend to plant barley on 7.661 million acres for harvest in 1993, down 2 percent from 1992/93.

Farmers indicated that they intend to plant barley on 7.7 million acres in 1993/94, down slightly from 7.8 million a year earlier. In North Dakota, the largest barley State, farmers intend to plant barley on 2.8 million acres, up 100,000 from the 1992/93 level. However, acreage is down in other major barley States. In Montana 1.2 million acres are expected to be planted; in Idaho, 730,000 acres; and in Minnesota, 675,000 acres.

Planting progress by May 1 was delayed in many areas as conditions were too wet to allow field work to progress normally. Most barley-producing States were significantly behind last year's sowing pace and the 5-year average. Significant planting progress, however, was made during the first 2 weeks of May. Minnesota and North Dakota plantings were ahead of the 5-year average by the middle of May, but Montana and South Dakota were behind.

Barley production in 1993/94 is forecast at 405 million bushels, down about 50 million from the previous year. Yields, derived from trend during the 1960-92 period, are forecast at 57 bushels per acre, down from the record 62.4 bushels per acre in 1992/93, but almost 2 bushels per acre more than 1991/92.

Barley imports for 1993/94 are forecast at 20 million bushels. Most imports will be from Canada, with much of it malting barley. As a result, 1993/94 barley supplies are forecast at 582 million bushels, down slightly from last year.

Barley FSI uses in 1993/94 are forecast at 165 million bushels, the same as a year earlier. The bulk of these uses is for beverage alcohol.

With this year's lower barley outturn, feed and residual use is forecast to fall to 190 million bushels. The possibility of prices remaining relatively low and a modest increase in the number of animal units will keep barley feeding from falling further.

Barley exports in 1993/94 are forecast at 80 million bushels, the same as last year. Once again, U.S. exports will likely continue to depend on the Export Enhancement Program

Table 3--Barley planting progress through May 16

State	Current week	Last week	1992	Average
Percent planted				
Colorado	88	86	95	95
Idaho	65	51	98	93
Minnesota	95	75	73	89
Montana	80	66	95	87
North Dakota	90	70	83	86
Oregon	85	NA	97	93
South Dakota	83	66	100	87
Utah	95	89	95	88
Wyoming	80	74	96	91
9 States 1/	85	NA	88	88

1/ These nine States produced 85 percent of the 1992 barley crop.

(EEP). Sales to Saudi Arabia have fallen off since the end of winter but are expected to pick up again soon. In the longer term, Saudi Arabia has announced their commitment to decrease their dependence on imported barley and replace imports with domestically grown barley.

The decline in feed and residual use of barley in 1993/94 brings total use to only 435 million bushels, down 5 million bushels from last year, and 60 million below 1991/92. Ending stocks are forecast to fall 10 million bushels to 147 million bushels. Although barley stocks are expected to decline in 1993/94, plentiful supplies of other grains remain available. Therefore, the average prices received by farmers are forecast to be \$1.85 to \$2.25 per bushel. In 1992/93, the season-average price is forecast at \$2.03 per bushel.

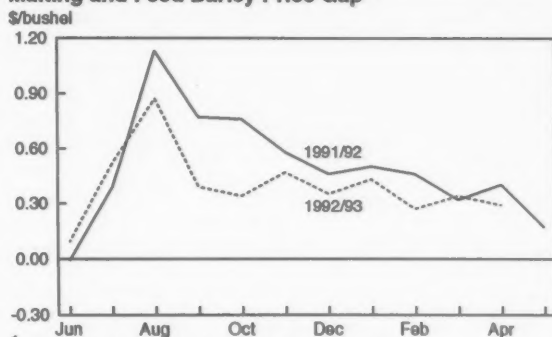
Update of 1992/93 Marketing Year

Barley supplies in 1992/93 are forecast to total 597 million bushels, bolstered by record yields, but limited by a decline in harvested area. Total disappearance is forecast at only 440 million bushels, down 55 million from a year earlier. Exports have fallen dramatically during the year and are forecast at 80 million bushels, down 14 million from 1991/92. From 1988/89 through 1990/91, U.S. exports averaged 81 million bushels annually.

At 195 million bushels, feed and residual use is forecast 45 million bushels below 1991/92 use. Most of the expected decline has occurred in the September-to-February period. Fourth-quarter feed and residual use in 1992/93 is forecast at 24 million bushels, similar to the final quarter of 1990/91 and 1991/92.

Figure 6

Malting and Feed Barley Price Gap¹



¹ Difference between farm prices for malting and feed barley.

The average price received by farmers during the 1992/93 crop year is estimated at \$2.03 per bushel, down from \$2.10 in 1991/92. Prices of malting barley and feed-quality barley fell during the year, as demand slackened greatly. Through the first 11 months on the June-May crop year, unweighted malting barley prices received by farmers have fallen from the 1991/92 average of \$2.41 per bushel to only \$2.23. Unweighted feed barley prices received by farmers fell by a smaller margin, from \$1.92 to only \$1.83 per bushel.

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Planting Intentions for Oats Register Modest Increase, Harvested Acreage Declines

In the March 1993 *Prospective Plantings* report, USDA announced that producers intend to plant 8.1 million acres to oats, a 2-percent increase from the previous year. However, the reported harvested acreage, 4.4 million, is 2 percent smaller, continuing a long-term downward trend in the number of harvested acres. Net returns per acre in recent years have improved, but oats nonetheless are priced too low vis-a-vis other crops that compete for the same soils. Therefore no large increase in oats acreage was expected. The modest increase in the planted area, relative to harvested area, indicates the role oats plays as a cover crop on set-aside acres.

The gap between the number of oats acres farmers "intended to plant" and the actual planted acres in 1992 was about 400,000 acres. In prior years the gap was slightly larger. In 1993, however, the gap could widen. Parts of the oats area across the United States were excessively wet during planting

Table 4--Oats planting progress through May 16

State	Current week	Last week	1992	Average
Percent planted				
Colorado	65	59	90	92
Idaho	48	38	93	86
Illinois	81	44	100	100
Indiana	85	55	100	95
Iowa	58	44	100	100
Michigan	75	30	85	90
Minnesota	83	59	94	94
Nebraska	100	92	100	100
New York	49	25	54	56
North Dakota	85	63	85	82
Ohio	93	60	98	96
Pennsylvania	81	59	86	89
South Dakota	75	59	100	98
West Virginia	90	87	63	91
Wisconsin	50	21	90	91
Wyoming	75	56	92	83
16 States	74	51	93	94

1/ These 16 States produced 85 percent of the 1992 oats crop.

season this year, perhaps causing at best long delays in sowing and at worst some switching from oats to other crops such as corn, soybeans, and other oilseeds. By mid-May, farmers had already begun to switch in Nebraska, Iowa, Illinois, and Wisconsin. Planting progress nationally was 19 percentage points behind the 5-year average pace of 74 percent by the middle of May. North Dakota was slightly ahead, but South Dakota and Wisconsin were behind 23 and 41 percentage points respectively.

Of the top-five oats-producing States, only Iowa and North Dakota posted gains in the number of harvested acres, although neither will expand enough to match 1991 levels. Of the remaining three, South Dakota's harvested acreage is expected to match the 1992 level, and in Minnesota and Wisconsin, the estimated oats acreage is projected to fall 5 and 7 percent, respectively. These five States are forecast to harvest oats for grain on almost two-thirds of the planted area in 1993, the same as in 1992.

Oats Supply and Demand Estimates for 1993/94

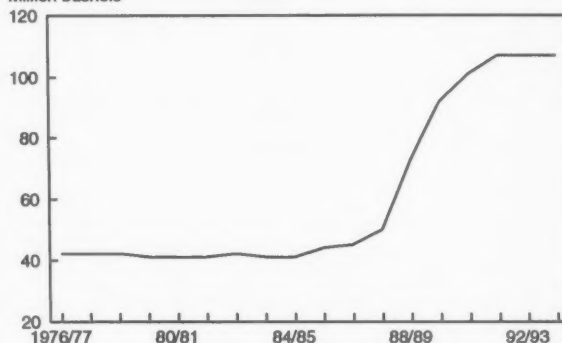
Using a simple average yield for oats from 1983 to 1992, oats yields are forecast at 55.5 bushels per acre. Coupled with the 4.4-million-acre estimate for oats, a 55.5-bushel yield translates into 1993/94 production of only 245 million bushels. This is about the same as 1991/92 production but is down 50 million bushels from last year's outturn. This year's production is likely to be one of the lowest on record, at about 56 percent of the average outturn of 1980-1989. Production in 1988/89 was the lowest ever at under 220 million bushels. Planting delays in some important areas may lead to localized yield losses. With topsoil moisture supplies rated adequate or better, proper germination is expected in most areas.

In 1993/94, oats imports are expected to rebound to 65 million bushels, up from 50 million in the previous year. The increase is largely the result of a return to more normal weather conditions in Scandinavian countries, where drought last year reduced exportable supplies. Canadian exports for 1993/94 are projected at about 50 million bushels, up almost one-third from the previous year. Canada has consistently been one of the top-three suppliers of oats to the United States in recent years.

With beginning stocks of only 111 million bushels, total U.S. supplies for the 1993/94 crop year are forecast at 421 million bushels, about 50 million below 1992/93 and almost 70 million below 1991/92. As a result, feed and residual use of oats is expected to fall to a record low 185 million bushels in 1993/94, about one-half that of the average of the 1980's. A larger and larger portion of FSI use is being consumed by horses, as dairy farms ease their reliance on oats. This might partially explain the decrease forecast in harvested acres in Minnesota and Wisconsin.

FSI use of oats is projected to be unchanged in 1993/94 at 125 million bushels. After several years of significant gains,

Figure 7
Oats Food and Industrial Uses
Million bushels



oats food and industrial uses--the biggest portion of FSI uses --is about 107 million bushels. This component has shown no growth since 1991/92, but it remains high.

The total use of oats in 1993/94 is projected at 315 million bushels, down 46 million from a year earlier. Unlike feed and residual use, however, total use is larger than the drought-reduced 1988/89 estimate, as FSI uses are 35 million bushels higher.

With use outstripping production and imports, ending stocks are forecast to continue to fall. By the end of the June-May crop year, oats inventories are expected to reach only 106 million bushels. Weighted average-marketing-year prices are expected to fall to \$1.15 to \$1.55 per bushel, compared with \$1.33 in 1992/93.

At the Close of 1992/93 Marketing Year, Ending Stocks Continue To Decline

In spite of record yields for the year, 1992/93 production plus imports was not enough to meet domestic demand. As a result, ending stocks are forecast to fall again and are forecast to fall further to 111 million bushels.

Over 12 million bushels of oats imports are forecast during the March-May quarter, bringing the yearly total to 50 million. Total supplies, were bolstered by improved production of 295 million bushels, reaching 472 million compared with 489 million in 1991/92.

Feed and residual use fell during the year to only 230 million bushels. Use declined for two reasons. Prices during the crop year, at \$1.33 per bushel, were more than 10 percent higher than the 1991/92 average. During the year, average prices received by farmers for corn, sorghum, and barley all declined. Supplies during the year are forecast to remain tight.

[Jim Cole, (202) 219-0840]

Hay Stocks on May 1 Decline 2.3 Percent

Cold, wet weather last winter caused increased hay feeding to livestock. As a result, hay stocks on May 1, 1993, were reported at 21.2 million tons, down over 30 percent from a year earlier.

Hay stocks declined by almost 85 million tons between December and May, 1.9 million tons (2.3 percent) more than in the same period a year earlier. Hay stocks on May 1, 1993, reported in USDA's *Crop Production* report, amounted to 21.2 million tons, down almost 7.5 million from the same date a year earlier. Severe winter weather beginning in late November 1992 forced increased supplemental feeding. In addition, cool, wet conditions across large parts of the country delayed pasture growth, boosting hay usage. Two other factors contributed to the decline in stocks: A 1-percent increase in the number of roughage consuming animal units (RCAU), and a smaller 1992 hay crop.

The number of RCAU's for 1992/93 is forecast at 77.0 million, about 600,000 more than the previous year and about 1.5 million more than 1990/91. Most of the 1992/93 increase in beef cattle not on feed (totaling 54.5 million). Hay supply per RCAU amounted to 2.32 tons, down from 2.36 tons in 1991/92. Hay disappearance per RCAU in 1992/93, on the other hand, reached a record 2.03 tons per animal, 3 percent above 1991/92 and 1.5 percent above the previous record set in 1987/88.

The increase in demand and the decrease in production worked together to boost hay prices during 1992/93. The all-hay price is forecast at \$73.20 per ton, an increase of \$2.00 per ton from a year earlier. Prices peaked in April at almost \$84 per ton.

Reduced alfalfa hay outturn accounted for all of the decline in hay production, finishing the year with only 79.7 million tons. As a result, alfalfa prices rose significantly, up \$3.80

per ton at \$78.40. This reverses a continued downward trend in prices that began in 1990/91. The other hay price is forecast at \$57.60 per ton.

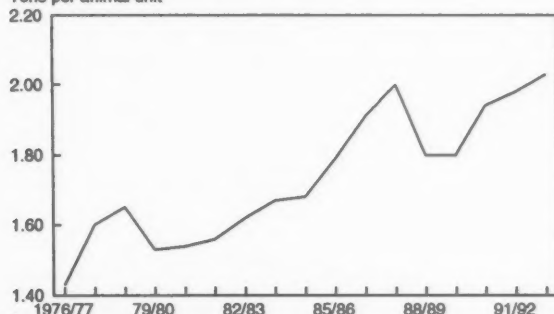
As farmers respond to production declines and higher alfalfa prices, USDA's *Prospective Plantings* report in March noted that farmers expect to harvest hay on 60.3 million acres in 1993/94, a 1-percent increase. The outlook for 1993 hay production is promising, as indicated by pasture and range conditions. As of early May, these conditions were reported as good-to-excellent across many parts of the country, with an overall rating of 84. This is the same figure reported in May 1992. These conditions are somewhat above the 1982-91 period, which averaged 77.

Conditions appear quite favorable in many of the key alfalfa States, such as California, Iowa, Minnesota, Nebraska, South Dakota and Wisconsin, which produced 41 percent of the total alfalfa output. Iowa conditions are at the upper end of the same range. In the other key States, conditions are rated good-to-excellent. California and Nebraska pasture and range conditions were reported excellent at 98 and 97 respectively. Although pasture and range conditions in Wisconsin are not as favorable, rated in the poor to fair category, soil moisture conditions are good.

Low carry-in stocks for the 1993/94 crop year will limit hay supplies. Production is expected to exceed 147 million tons if hay yields are near average. Supplies are expected to be below 170 million tons, the lowest since 1989/90.

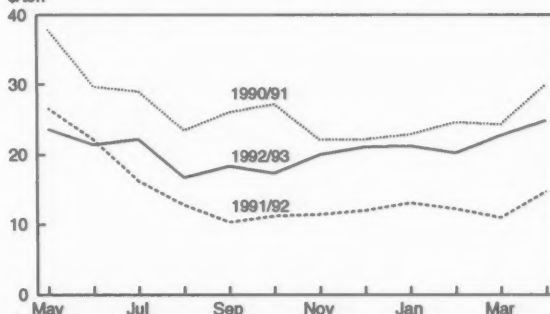
[Jim Cole, (202) 219-0840]

Figure 8
Hay Disappearance per RCAU¹
Tons per animal unit



¹ Roughage consuming animal unit.

Figure 9
Alfalfa and Other-Hay Price Gap¹
\$/ton



¹ Difference between farm prices for alfalfa and other hay.

Feed and Residual Use in 1993/94 Projected To Rise 1 Percent

Continued increases in livestock numbers in 1992/93 maintain strong feed demand.

Feed and residual use (on a mixed-marketing-year basis) of the four feed grains in 1993/94 is projected to increase 1 percent from the 153 million metric tons forecast for 1992/93. Feed demand in the remainder of the marketing year is expected to remain strong, with feed and residual use (all on a September-August basis) of the four feed grains and wheat up nearly 8 percent from 148 million metric tons a year earlier. During December 1992 through February 1993, feed and residual use of the four feed grains and wheat totaled 40 million metric tons, up from 37 million in the same period of 1991/92, and 3 percent above the 5-year average. Increases in numbers of cattle on feed, market hogs, and poultry helped boost feed use.

Winter storms have taken their toll. Broilers were lost when heavy winter snows caused some broiler houses to collapse. Cold, rainy weather and poor feedlot conditions resulted in poor performance and increased death loss for some cattle on feed. In the 13 States reporting quarterly, the number of cattle on feed on April 1 was 8 percent above 1991/92, but 3 percent below 1990/91. Possibly reflecting less-than-optimal feedlot conditions, feeders marketed 2 percent fewer cattle in the 1992/93 winter quarter than in the same quarter of 1991/92, even though inventories of cattle on feed on January 1 were 7 percent above last year. In any case, larger numbers of cattle on feed suggest additional feed used, and the number on feed are expected to remain above year-earlier figures during the remainder of the grain marketing year.

The March 1 inventory of market hogs was up 4 percent from 1992, as were the numbers of hogs and pigs kept for breeding. The increase in hog numbers will help boost feed demand in 1992/93. Most hogs are now raised in confinement and are sheltered from the weather. Thus, extreme weather should not have slowed hog gains, but slaughter has been behind expectations given hog inventories. Part of the reason currently given is that corn quality is lower than in years past and has slowed rates of gain. If true, the lower quality would help explain increased use in the first two quarters. Feeders are expected to adjust rations to compensate for any quality problems and regain hog growth performance, bringing feed-use increases more in line with changes in hog numbers.

Feed use by the poultry sector is expected to be up from last year, mainly from increased broiler and layer numbers. The average number of layers during December 1992 through February 1993 was 1 percent above 1991/92, with the increase in hatching-egg flocks used to produce broiler chicks. In the remainder of the grain marketing year, egg production is forecast to be nearly 1 percent above last year. While the number of layers may be nearly the same as last year, feed

demand by egg producers will be up slightly from last year, mainly from the increase in broiler breeder numbers.

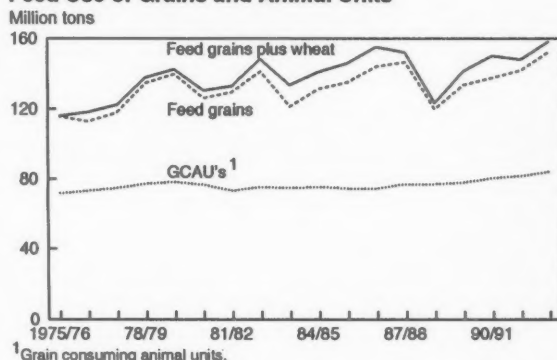
Broiler production continues to increase in 1992/93. Based on numbers of pullets entering the breeding flocks, producers intend to continue increasing broiler output through the summer. In 1992/93, broiler production is expected to increase 4 percent from 1991/92. Thus, feed demand by the broiler sector is expected to continue strong.

Placement of turkey poults during September 1992-April 1993 was 1 percent below 1991/92. The increase in hog production has reduced prices for turkey meat to be used in processed meat items and may continue to slow poult placement. Current expectations are for a 1-percent increase in turkey meat output. Thus, feed demand by the turkey sector is expected to stay about the same or increase slightly.

Feed demand by the dairy sector is forecast to remain about the same as 1991/92. In the January-March period of 1993, dairy cow numbers have been 1 percent below last year and milk production per cow was nearly the same as last year. However, milk production was reduced 1 percent from last year because of the effect of leap year. On April 1, producers reported feeding 18.2 pounds of grain and other concentrates per cow, up from 18.1 pounds in 1992. Cow numbers may remain slightly below a year earlier, but milk production will continue about the same, suggesting continued increases in feeding per cow to obtain additional milk.

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Figure 10
Feed Use of Grains and Animal Units



Food, Seed, and Industrial Use in 1993/94 Projected To Rise 4 Percent

While corn sweeteners in total during 1993/94 may consume more corn than other uses, fuel alcohol will likely be a major industrial use for corn.

In the 1993/94 marketing year, food, seed and industrial (FSI) uses of corn is expected to total 1,550 million bushels, up nearly 4 percent from the 1991/92 forecast, and would account for 18 percent of total use. FSI use of corn in 1992/93 is expected to increase nearly 3 percent from 1,454 million bushels in 1991/92, and represent nearly 18 percent of total use. Seed use is expected to be down 4 percent from last year because of the reduction in planted area. However, the food and industrial use components are expected to be up.

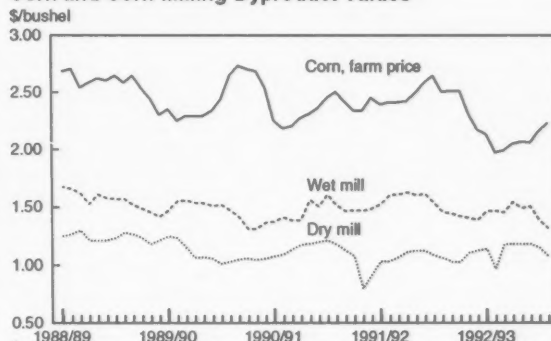
The increase in corn used for industrial purposes in 1993/94 is expected to be led by production of fuel alcohol, with 9 percent more utilized than the 1992/93 forecast of 410 million bushels. If use turns out as currently expected, fuel alcohol production will be the largest user of corn for industrial and food uses; however, corn sweeteners in total are expected to use slightly more corn.

From September 1992 through February 1993, corn used to produce fuel alcohol was up 6 percent from the same period a year earlier. Additional alcohol was used to meet requirements of the Clean Air Act Amendments of 1990 which were in force for 39 metropolitan areas and counties that failed to meet carbon monoxide air quality standards. The Act required gasoline sold during at least the 4 winter months must contain 2.7-percent oxygen by weight. The addition of 10 percent alcohol to gasoline gives an oxygen percentage of 3.5, well above the amount necessary to meet the requirements, and allows a Federal blending credit of 5.4 cents per gallon of gas. Use of alcohol might have been even higher if three additional cities had participated as planned, if California had kept its 2.7-percent oxygen requirement rather than reducing

it to 1.8 percent, and if New York had not delayed the start of the program.

Methyl tertiary butyl ether (MTBE) supplies were built up for the program, and petroleum producers added manufacturing capabilities, resulting in plentiful supplies of this competing oxygenate. Spot prices of all oxygenates declined during the November 1992-February 1993 program period because of the plentiful supplies. For the remainder of the 1992/93 grain marketing year, corn used in alcohol production may about equal the 199 million bushels used last year. The wet-mill corn plants that switch from starch and sweeteners

Figure 11
Corn and Corn-Milling-Byproduct Values¹



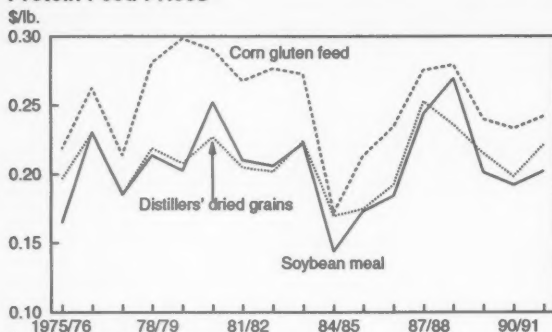
¹ Byproduct values converted to corn-equivalent based on byproduct yields.

Table 5--Corn: Food, seed, and industrial use, 1980/81-1993/94 1/

Year	HFCS	Glucose and dextrose	Starch	Fuel	Alcohol Beverage	Cereals & other products	Seed	Total
Million bushels								
1980/81	165	156	151	35	78	54	20	659
1981/82	183	160	146	86	86	53	19	733
1982/83	214	165	150	140	110	60	15	854
1983/84	265	167	170	160	88	70	19	930
1984/85	310	167	172	232	84	81	21	1,067
1985/86	327	169	190	271	83	93	19	1,152
1986/87	338	171	214	290	85	109	16	1,223
1987/88	358	173	226	279	77	113	17	1,243
1988/89	361	182	223	287	107	114	19	1,293
1989/90	368	193	230	321	109	115	19	1,355
1990/91	379	200	232	349	80	114	19	1,373
1991/92	392	210	237	398	81	116	20	1,454
1992/93	410	215	240	410	83	118	19	1,495
1993/94	420	220	245	445	83	118	19	1,550

1/ Marketing year beginning September 1.

Figure 12
Protein Feed Prices¹



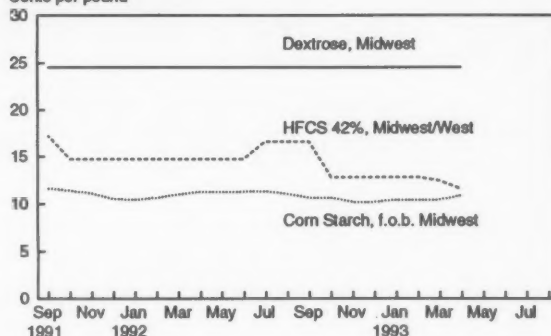
¹ Converted to price per pound of protein.

to alcohol in the winter have likely switched to sweeteners, as demand for this product increases seasonally.

In 1993/94, high fructose corn syrup (HFCS) production is expected to increase 2 percent from the 410 million bushels of corn expected to be used in 1992/93. Based on use through the second quarter, HFCS production in 1992/93 should increase nearly 5 percent from last year. The biggest use of HFCS is to produce soda pop, which is most in demand during the summer quarter. HFCS use is seasonally highest during the March-August period.

Glucose and dextrose use in 1993/94 is expected to be up 2 percent from the forecasted 215 million bushels in 1992/93, an increase of nearly 3 percent from the prior year. Use in the first half of 1992/93 was up 2 percent from last year and is expected to increase in the second half. In producing lower-calorie beers, the brewing industry uses some corn sweeteners, which are totally converted to alcohol, because grain leaves some calories in the brew. Beer production is generally increased for the summer, when demand boosts sales.

Figure 13
Wet Mill Product Prices
Cents per pound



Starch production in 1993/94 is also forecast to increase 2 percent from the 1992/93 forecast, as the economy continues to strengthen. Starch production in 1992/93 may increase about 1 percent from last year, even though first-half production was about equal to last year. As the economy continues to grow, industrial uses of starch are expected to increase from last year.

In 1993/94, corn used in beverage alcohol is expected to be about equal to use in 1992/93, especially if additional taxes are added to alcoholic beverages. The amount of corn used to produce beverage alcohol usually increases as the economy grows. During 1992/93, corn used to produce beer and distilled spirits is expected to increase nearly 3 percent. In the first half of 1992/93, use was off nearly 8 percent from the previous year, but usage should increase as the weather warms and beer production increases.

The amount of corn used in cereals and other products in 1993/94 and 1992/93 is expected to increase at about the same rate as the growth in population. During September 1992-February 1993, use was estimated up nearly 1 percent and is expected to be up 1 percent for the marketing year.

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Demand for Transportation Projected to Fall in 1993/94, but Remains Strong for 1992/93

Supply of transportation services will remain adequate.

Domestic consumption of total grains and soybeans during 1993/94 is projected to increase 2 percent over 1992/93 to 236.2 million metric tons. A projected reduction in exports of 7.41 million metric tons will more than offset the increase and hold demand for transportation near 1992/93 levels. Impacts of these changes will differ among modes. Sharp reductions in projected exports of corn and soybeans, totaling 5.64 million metric tons, suggest that barge shipments will decline from 1992/93 levels. The projected increase in domestic corn consumption, 5.17 million metric tons, indicates that rail shipments will increase slightly from 1992/93.

Rail Volume Remains High for 1992/93, Barge Volume Down

Export and domestic consumption of total grain and soybeans for 1992/93 is now estimated up 5 percent (18.1 million metric tons) from 1991/92. Domestic corn consumption accounts for 58 percent of the increase.

Corn and soybean exports in 1992/93 are projected up 3.4 million metric tons, suggesting an increase in use of barge service from 1991/92. Increased domestic consumption and large wheat exports indicate continuing demand for rail service.

Grain exports during September-April 1992/93, as measured by inspections for export, totaled 3.0 billion bushels, 10 percent above 1991/92. The rise was concentrated in corn and soybean exports through east Gulf and Mississippi River ports, which increased 251.8 million bushels, with corn and soybeans rising 199.9 million and 41.8 million bushels respectively. Wheat exports through these ports rose 1.4 million bushels from the same period in 1991/92.

Grain and soybean exports through Great Lakes and Atlantic ports also rose from prior-year levels. Again corn and soybeans were the chief contributors to the rise.

Exports through Pacific Coast ports fell 62.6 million bushels with corn off 55.8 million bushels. The decrease in corn shipments to these ports freed railcars for use on other routes.

Rail shipments for export fell 2 percent during September-May 1992/93 from the same period of the prior year. Shipments to Pacific Coast ports averaged down 510 cars per week, overshadowing increases at North Atlantic, South Atlantic, and Mississippi River ports.

Rail Volume Up From 1991/92

Rail shipments of grain and oilseeds during September 1992-May 1993 averaged 29,291 cars per week, 5 percent above the same months of 1991/92, largely because of increases in domestic corn shipments.

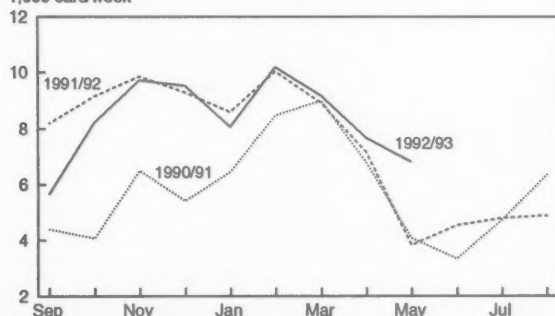
Rail shipments of grain peaked in February 1993 at 30,707 cars per week, 2 percent above February 1992. At mid-May 1993, shipments had slackened to 24,907 cars per week, 17 percent above May 1992.

The June wheat harvest is expected to increase rail shipments somewhat, and carloadings are expected to remain above 1991/92 levels.

Railcar Supply Up From 1991/92

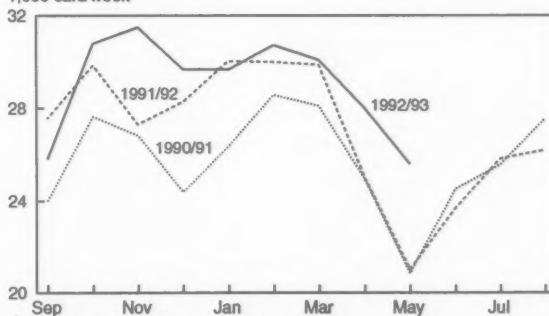
In May 1993, the 250,986 covered-hopper cars (each holding 4,000 cubic feet or more) were available for service, 1 percent above January. The rise is caused by an additional 1,925

Figure 14
Railcar Unloadings of Grain¹
1,000 cars/week



¹ At Atlantic, Gulf, and Pacific ports.

Figure 15
Railcar Loadings of Grain and Soybeans¹
1,000 cars/week



¹ Weekly data averaged to get monthly observation.

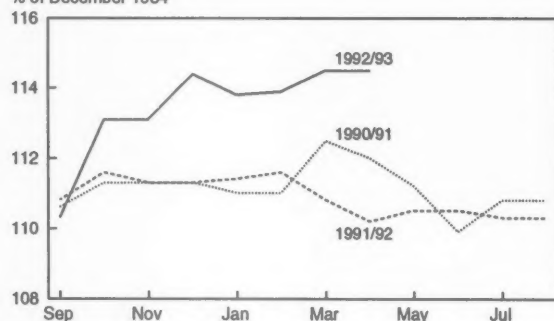
privately owned cars entering the service fleet. Further increases in grain-carrying cars are in prospect. The Burlington Northern Railroad is reported to be purchasing 1,000 covered-hopper cars to be delivered in the third and fourth quarters of 1993. These cars can carry 111 tons each, 11 tons more than the previous standard, jumbo covered-hopper car.

Rail Rates Up Modestly, Projected To Be Nearly Unchanged

Rail rates for grain have risen slightly since September 1992. The Bureau of Labor Statistics' rail rate index for grain was up 2 percent for September to April 1992/93. No more than modest increases are in sight. The Interstate Commerce Commission (ICC) has ruled that the Rail Cost Adjustment Factor (RCAF), as adjusted for productivity, for April-June 1993 will increase 0.8 percent from the first quarter of 1993. Computed quarterly, the RCAF reflects changes in rail operating costs and productivity. Railroads may raise or lower rates to reflect changes in the RCAF without ICC review.

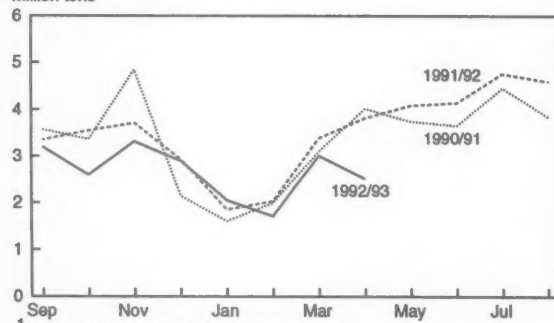
No major upward cost pressures are in view and rail rates for grain are expected to continue nearly flat for the remainder of 1993.

Figure 16
Rail Rate Index for Grain
% of December 1984



Source: Bureau of Labor Statistics.

Figure 17
Monthly Grain Shipments¹
Million tons



¹ Mississippi River and Illinois waterway.

Barge Shipments Expected To Rise Above Winter Levels

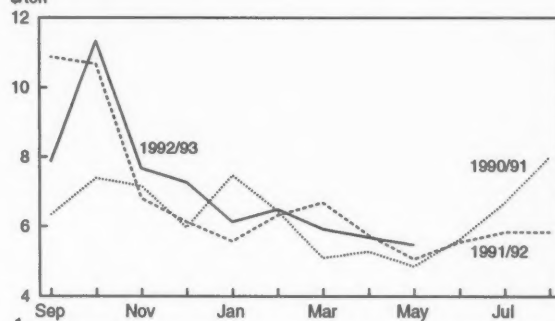
Grain shipments on the Illinois and Mississippi River systems averaged 2.7 million tons during September 1992-April 1993, 10 percent below the same months of 1991/92. During March 1993, shipments totaled 3.0 million tons, 12 percent below March 1992 and 6 percent below the 11-year average. Volume rebounded fell further in April to 2.5 million tons. This is the smallest volume posted for April during the previous 11 years. Severe flooding in May brought navigation to a halt on some parts of the Mississippi and Missouri Rivers. Preliminary data suggest that May shipments will be in the 2.5-million to 3.0-million-ton range.

As flood waters recede and export demand for corn and soybeans remain strong, barge shipments are expected to average above 4 million tons per month for the remainder of 1992/93.

Barge Rates Down From October Highs

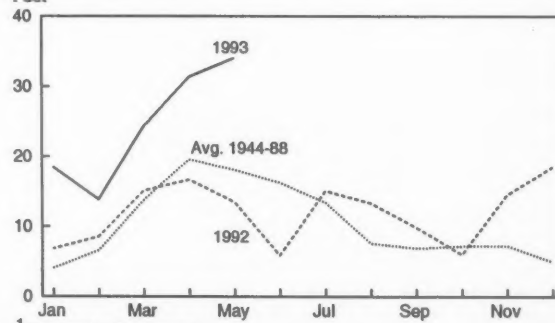
Barge rates to New Orleans from Peoria, Illinois, fell 29 percent to \$5.47 per ton from October 1992 to May 1993. Over the same months, rates from St. Louis, Missouri, to New

Figure 18
Barge Rates to New Orleans¹
\$/ton



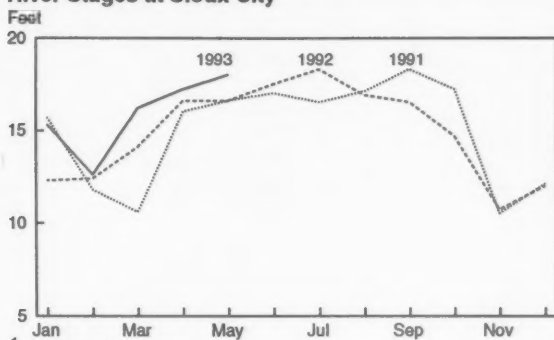
¹ From Peoria, IL.

Figure 19
River Stages at St. Louis¹
Feet



¹ Measured at flood gauge.

Figure 20

River Stages at Sioux City¹¹ Measured at flood gauge.

Orleans dropped 62 percent to \$3.84 per ton. These declines reflect the less-than-anticipated use of barges for shipments to export points on the U.S. Gulf.

Mississippi River Conditions

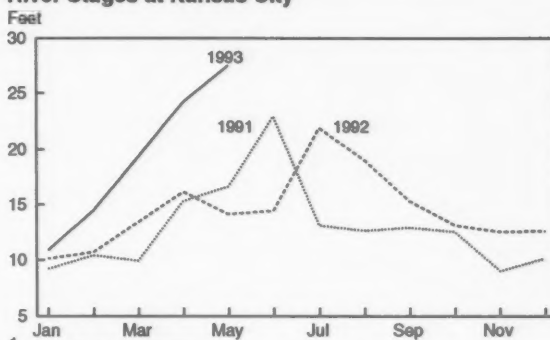
During January-May 1993, water levels at St. Louis have remained well above the prior year and the 1944-88 average. In April, the river rose seasonally, averaging 31.3 feet at the flood gauge, 29 percent above March. April's average was 60 percent above the 1944-88 average and 88 percent above April 1992.

Flooding in May caused a rise to 34.0 feet, 89 percent above the 1944-88 average and 152 percent above the May-1992 average. These high water levels caused locks to be temporarily closed, halting navigation at some locations. Barring a major drought, there is no indication that the low water conditions of 1988 and 1989 will return in 1993.

Missouri River Conditions

Navigation conditions on the Missouri River are expected to be about the same as in 1992. The U.S. Army Corps of Engineers opened the Missouri River to navigation on April 1, 1993, the same date as in 1992. Closure of the river to navigation is expected on October 25, 5 weeks early. The Corps anticipates water flows will be the same as in 1992, 6,000 cubic feet per second below the Corps full service level. Such a reduction results in a condition termed "minimum service" by the Corps. At this level, a 9-foot-deep channel

Figure 21

River Stages at Kansas City¹¹ Measured at flood gauge.

will mostly be maintained, but an above-average number of groundings can be expected.

The reduced flow situation results from continuing shortages of water stored in the reservoirs supplying the Missouri River. On May 1, 46.6 million acre feet were available, 79 percent of average. This represents an improvement from 1992, but the Corps does not anticipate a return to full service this season.

The quantity of water stored in upstream reservoirs will be checked on July 1 and a final plan for the 1993 navigation season will be announced then. Even if additional water releases could be possible, increased flows must be delayed until endangered birds (terns and plovers), which nest downstream, have fledged. This requirement can be expected to delay any marked increase in water flows until late August or early September.

With the April opening, water levels at the Sioux City, Iowa, flood gauge rose 6 percent to average 17.2 feet. At Kansas City, Missouri, rains added to rising water levels, with April's readings averaging 24.2 feet, 25 percent above March.

May showed further increases. At mid-month, the Sioux City gauge averaged 18.0 feet, with rains bringing 27.5 feet at Kansas City. High water in the Nebraska and Missouri stretches of the river halted navigation for several days in May.

[T.Q. Hutchinson, (202) 219-0840]

World Coarse Grain Output Projected To Drop in 1993/94

Foreign crops projected down only marginally. Slight gains in global consumption expected.

Small Drop in Supplies and Increased Use Expected in 1993/94

Global supplies of coarse grains are projected to decline 1 percent in 1993/94, because of lower foreign and U.S. supplies, but still will remain relatively large in historical terms. Larger carry-in stocks of coarse grains nearly offset a projected decline in production. This assessment is based on USDA's initial projections for 1993/94. Changes in 1992/93 forecasts are still possible, with several months remaining in the season.

Global coarse grain production for 1993/94 is projected at 817 million tons, down 4 percent from the 854-million-ton record of 1992/93. The greatest portion of this reduction is expected in the United States. World production of each coarse grain is projected down, except for oats.

World coarse grain consumption is projected to be up marginally to around 833 million tons. Global consumption is projected to be higher than world production, reversing the relationship of 1992/93, and leading to a drawdown in stocks. World ending stocks are projected to fall about 11 percent to 139 million tons, with a greater decline expected in the foreign sector. The world ending stocks-to-use ratio is projected at 16.6 percent, compared with 19 percent forecast for 1992/93.

Foreign coarse grain consumption is expected to rise slightly to 633 million tons, mainly on the strength of a rebound in production in regions that had unusually poor crops in 1992/93. These include Eastern Europe and southern Africa. This would be the second year in a row that total foreign use increases, but it still will remain well below the 1989/90 record of 641 million tons. A sharp contraction in the livestock sectors of the former Soviet Union and Eastern Europe accounts for much of this stagnant pattern. Consumption is lackluster in many developed countries in Western Europe and Japan. This tends to offset substantial growth in other areas, such as China and many developing countries in Asia and Latin America.

Foreign Production To Contract Slightly in 1993/94

Foreign coarse grain production is projected at 571 million tons, down about 1 percent from 1992/93, and the lowest since 1989/90. Small declines are projected for each of the individual coarse grains, except oats. Oats production is projected to increase about 5 percent.

Initial expectations call for a drop in area and average yield. The average foreign yield is projected to slip from 2.07 in 1992/93 to 2.06 tons per hectare, the third consecutive decline

from the record high of 2.12 tons in 1990/91. It also falls slightly below the linear trend of the previous 20 years.

Foreign coarse grain area has been trending downward since the early 1980's, and a prospective decline of 1.5 percent in 1993/94 would mean the lowest foreign acreage since the mid-1960's. The outlook is heavily shaped by developments in the European Community (EC) and China, two major producers. Although area in the EC has been declining fairly steadily for the last decade, a larger decrease is in store because of policy changes associated with Common Agricultural Policy (CAP) reform (see box). In China, the area of corn and most other grains is anticipated to fall for several reasons, including declining prices relative to other crops, large stocks, and the loss of agricultural land to nonfarm uses.

Figure 22

Foreign Coarse Grains Area and Yield¹

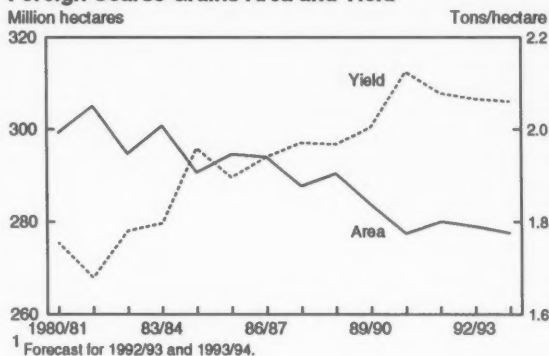
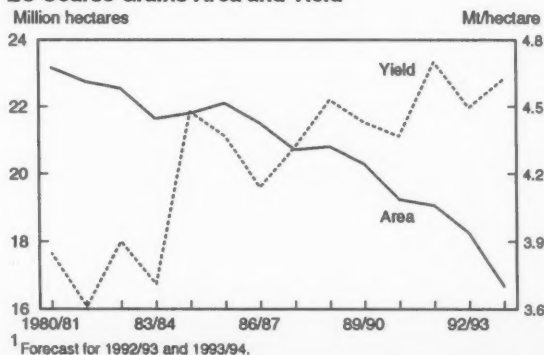


Figure 23

EC Coarse Grains Area and Yield¹



The largest decline in 1993/94 foreign production is likely in India, with coarse grain output projected down about 5.5 million tons. This reflects more normal yields than the 1992/93 record yields that resulted from exceptionally favorable weather. The next largest decline, about 5 million tons, is expected in the EC because of lower area. In China, the world's second largest producer after the United States, coarse grain output is projected to fall 3.5 million tons due to the expected reduction in area and forecast slightly lower yields.

Production in the former Soviet Union (FSU), the third largest foreign producer, is forecast to decline 2 percent because of lower barley and rye crops. However, a sharper drop is likely in the FSU wheat crop, pulling down total grain production there. The largest gains for coarse grain production in 1993/94 are projected for Eastern Europe, Canada, and other West European countries. In each case, a recovery from adverse growing conditions will mean higher yields and/or an increase in harvested area. Most of the gains in Eastern Europe are expected in corn, after drought slashed output in 1992/93. The largest prospective increase in Canada is in corn, followed by barley. Most of Canada's corn is grown in Ontario, where much of the late-maturing crop in 1992/93 was not harvested because fields were too wet, similar to Michigan.

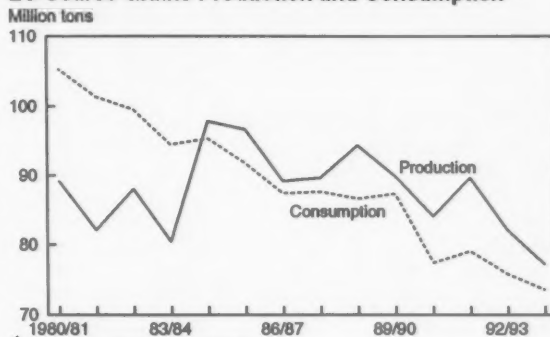
Most of the increased production in other West European countries is expected in Sweden, where severe drought slashed crops in 1992/93. Oats production is projected to rise nearly 50 percent and barley nearly 30 percent. A return to average yields accounts for the entire rise in output, with acreage expected down. This is in line with the declining area trend of recent years due to fallow programs and reductions in producer supports. Smaller gains are likely in Finland's barley and oats production, which were not as badly affected in 1992/93.

Update for 1992/93 Southern Hemisphere Crops

Prospects are generally favorable for most Southern Hemisphere harvests now underway. The glaring exception is Australia's sorghum crop which is forecast down 55 percent to 480,000 tons, the lowest in more than 20 years. Extremely

Figure 24

EC Coarse Grains Production and Consumption¹



¹ Forecast for 1992/93 and 1993/94.

dry summer conditions damaged the crop. Conversely, heavy rainfall boosted 1992/93 output of Australia's wheat and barley, grown as winter crops, and caused widespread quality damage to the wheat.

Crops in the southern Africa region have mostly recovered from the drought disaster of the year before. The corn crop in South Africa is forecast at 8.5 million tons, up nearly three times the level of a year ago, after very favorable weather during the second half of the season. This relieves supply concerns and will permit stock building. For the rest of the southern Africa region, excluding South Africa, corn production is forecast at 5.5 million tons, compared to 2.2 million the year before. This matches the average for the decade preceding the 1991/92 drought.

Argentina is harvesting another big crop, with corn forecast up 8 percent to 11.5 million tons, the highest in 7 years. Sorghum is forecast at 2.8 million, about equal to 1991/92. Brazil's corn crop is forecast at 27 million tons, down 4 percent, but still the second highest ever.

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EC CAP Reform To Begin, Some Decline in 1993/94 Production Likely

Largely motivated by soaring budget outlays and overproduction problems, the EC is making changes in its Common Agricultural Policy starting in 1993/94. The reform package focuses on grains and beef, but also includes changes in the support regimes for protein crops, tobacco, sheepmeat, and dairy. Despite the likelihood of lower production in 1993/94, only minor changes are initially expected in coarse grain consumption and exports.

Among the key changes for the grain sector are a reduction in support prices, introduction of a new set-aside program, initially set at 15 percent, and direct income support payments for farmers to compensate partially for price cuts. The price reductions and compensation payments will be phased in over a 3-year transition period. Larger producers (on average those planting arable crops on 20 hectares or more) are required to set aside a portion of their arable crop base in order to qualify for compensatory payments, but the EC set-aside is not commodity specific. Smaller producers are exempted from the set-aside requirement. However, those smaller farmers who wish to receive higher support payments for oilseeds or protein crops must participate in the set-aside program.

EC coarse grain production in 1993/94 is projected at 77 million tons, a drop of 13 percent from the previous year and the lowest since 1976/77, based on a forecast 9-percent area reduction from 1992/93. This is not a shift in direction because EC coarse grain area has already been trending downward. Barley area is expected to be down 10 percent, corn area 11 percent, and little change in oats and rye. EC wheat area is projected to fall only 7 percent, as most farmers expect higher net returns for wheat relative to other grains.

EC yields are projected to increase in 1993/94, despite the possibility that input use may be reduced due to lower grain prices. This is partly because of expectations of better weather, but varietal improvements, set-aside of more marginal land, and more intensive management may also contribute to improved yields.

Even with a fall in the prospective harvest, very large carry-in stocks will allow the EC to continue large exports in 1993/94. Coarse grain exports are projected at 8.5 million tons, compared to 9.9 million forecast in 1992/93. The exports mainly consist of barley, followed by smaller amounts of corn and rye.

There is a great deal of uncertainty about the impact of CAP Reform on EC coarse grain use. EC consumption has been falling fairly steadily since 1980, helping the EC to become a net coarse grain exporter by the mid-1980's. Lower consumer grain prices may stimulate some gains in use over time, but no immediate gains are projected in 1993/94. The interplay of a number of factors will influence future consumption. One is the degree of expansion in EC production of meat and poultry in response to lower feed prices, along with consumers' response to lower meat prices.

Competition between coarse grains and other feeds is another major question. Wheat feeding is expected to increase in 1993/94 and beyond, reflecting relatively abundant supplies and the elimination of EC intervention buying of feed wheat under CAP reform. Prices for nongrain feeds, such as tapioca and corn gluten feed, are expected to decline in reaction to lower grain prices. However, prices for protein meals relative to grains will rise, encouraging some increase in the proportion of grain in EC rations.

World Coarse Grain Trade Projected To Fall 7 Percent in 1993/94

Volume of trade expected to shrink to lowest since 1986/87. U.S. exports and market share likely to drop after gains in 1992/93.

World coarse grain trade in 1993/94 is projected at 84 million tons, down from 90.5 million forecast in 1992/93 and the second consecutive decline.¹ Nearly all of the projected trade decline occurs in corn, down 6 million tons. Virtually no change is projected in 1993/94 sorghum and barley trade, while trade in oats will be up sharply, and rye will shrink.

U.S. Corn Export Forecast Raised for 1992/93

U.S. coarse grain exports for 1992/93 are forecast at 53.3 million tons, up 6 percent from the previous year. Stronger corn shipments account for all of the year-to-year gains, with declines expected in U.S. sorghum and barley exports. Sorghum exports are forecast to drop 6 percent to 7 million tons, based on expectations of lower sales to Mexico. Mexico, the largest sorghum buyer, is expected to reduce government corn stocks in the next few months, temporarily depressing import demand for sorghum. U.S. barley exports in 1992/93 are forecast to fall 19 percent to 1.7 million tons. This is primarily due to lower prospective demand by Saudi Arabia, the world's largest barley importer.

U.S. corn exports are forecast at 44.5 million tons in 1992/93, an increase of 10 percent from 1991/92. This forecast reflects strong export sales to date, sizable donations to a number of countries, and a new allocation of food aid to the FSU. Although Russia remains delinquent in its payments for grain previously purchased under U.S. credit guarantees, some resolution is in sight following a rescheduling in April of Russia's 1993 debt obligation by the Paris Club of government creditors. In addition, a new U.S. food aid package was announced at the Vancouver Summit in April.

Under the U.S. Food for Progress program of concessional credits, \$500 million will be available for commodity purchases by Russia, including \$227.5 million for corn and \$200 million for freight. This will allow purchase of between 2.2 and 2.4 million tons of U.S. corn, expected to be shipped during the summer months. Russia and the United States will share the transportation costs, with Russia paying the foreign-flag equivalent freight rate and the United States the remaining costs, including the differential for using higher cost U.S. vessels for a required 75 percent of the commodities.

Despite this additional allocation, corn exports to the FSU will be relatively low compared with previous years. However, U.S. exports to many other destinations have increased, including Sub-Saharan Africa, Poland, Canada, and many

countries in Latin America and the Caribbean. Exports to Japan, the largest corn market, are running at a similar pace to a year ago.

Corn Import Demand To Shrink In 1993/94

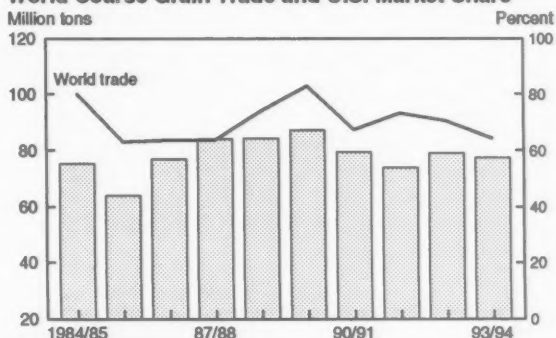
World trade in corn is projected at 56.2 million tons in 1993/94, the lowest since the mid-1980's. The most striking reduction in imports will occur in South Africa because of the dramatic recovery of its corn crop now being harvested. South Africa's corn imports are forecast at zero, compared with 2.3 million tons in 1992/93. Other countries in the southern Africa region are also projected to reduce corn imports because of better crops. Imports by the region (excluding South Africa) are projected at 1.5 million, down from 2.4 million in 1992/93. The extent of year-to-year change will be muted in some countries, such as Mozambique, because of continuing food shortages related to civil unrest.

Corn imports by the FSU are projected to decline 1 million tons in 1993/94 to 7 million tons, the third straight drop, because of the difficult financial situation, contraction of the livestock sector, and probable emphasis on wheat imports over feed grains. Elsewhere, better crops are expected to reduce import needs in Canada, and in most East European countries where crops suffered from adverse weather conditions in 1992/93. Depending on the strength of recovery and domestic demand, some of these countries, such as Hungary and Canada, could emerge as net corn exporters.

An increase in imports of wheat for feeding is expected to reduce South Korea's 1993/94 corn purchases 6 percent to 6.5 million tons. Most of this wheat is likely to come from Canada and Australia because of large carryover supplies from damaged crops in 1992/93. South Korea has been buying

Figure 25

World Coarse Grain Trade and U.S. Market Share¹



¹ Forecast for 1992/93 and 1993/94.

¹ All trade years referred to in this section are October-September and exclude intra-EC trade, unless otherwise specified.

large amounts of wheat for feeding in recent weeks for 1992/93, as wheat for feeding prices have dropped relative to corn. Total feed grain use is expected to increase again in South Korea in 1993/94, but wheat will account for a larger share.

Japan's corn imports are expected to slip 1 percent in 1993/94 to 16.2 million tons. A combination of weaker economic growth in recent months and further liberalization of meat imports (starting in April 1993) will likely prevent any growth in corn demand. Mexico's corn imports are forecast equal to 1992/93, at a relatively low 1 million tons, assuming the North American Free Trade Agreement (NAFTA) is not implemented. If the NAFTA takes effect, then corn imports will be higher (see special article).

Stable Outlook for Sorghum and Barley Trade

World sorghum trade is projected at 8.9 million tons in 1993/94, down less than 1 percent. The market will remain geared almost totally around the two major importers, Mexico and Japan. A few smaller importers complete the market. More favorable prices relative to other feed grains could marginally push up purchases by some of these importers.

In the event that NAFTA is adopted and becomes effective in 1994, Mexico's sorghum imports, which virtually all come from the United States, will be less than the 4.5 million tons projected. This is because a significant share of the 2.5 million tons of duty free corn allowed in the first year of NAFTA would be imported in 1993/94, raising corn imports and reducing import demand for sorghum.

Trade in barley is projected at 16.2 million tons in 1993/94, up slightly. Imports by Saudi Arabia are projected to decline slightly in 1993/94 for the second consecutive year. While Saudi import intentions are difficult to judge, relatively large stocks and a modest gain in domestic barley output point to lower prospective imports. FSU imports are also projected to decline again, but the amount will largely be determined by the availability of exporter credit or barter.

Although Saudi Arabia and the FSU typically determine the direction of world trade, and account for most of the annual variation, growth elsewhere in 1993/94 is expected to support barley trade. Drought in North Africa has increased import needs in Morocco and Algeria. U.S. barley imports are also likely to be up in 1993/94 due to an expected recovery in Canada's malting barley crop. Elsewhere, barley import prospects are little changed from 1992/93, except for Eastern Europe where bigger crops are likely to mean lower imports.

Oats Trade Projected To Rebound in 1993/94

World trade in oats is projected to rise more than 30 percent to 1.8 million tons in 1993/94, on the strength of increased Scandinavian supplies and strong U.S. import demand. Along with larger crops in Sweden and Finland, Canada is expected to have larger supplies because of higher carry-in stocks and a small increase in production. Exports by Sweden are projected at 200,000 tons, compared to none in 1992/93, while Finland's are projected to rise from 210,000 to 350,000 tons. Canada's exports are projected up 30 percent to 850,000 tons.

Finland and Sweden have been confronting difficult economic problems in recent months, putting pressure on both governments to reduce expenditures. However, each country will apparently have funds available to subsidize oats and other grain exports in 1993/94. Sweden has been substantially reducing agricultural support measures as part of a move toward more market forces, and export programs for grains are being eliminated. But funds that are carried over into 1992/93 and not needed will likely be used to support exports in 1993/94. In Finland, the government is reducing its share of export subsidies for grain in 1993/94, so that growers will have to fund at least 20 percent of grain export subsidies up to 350,000 tons, and a higher share for greater amounts of exports.

U.S. Coarse Grain Exports Expected To Decline 9 Percent in 1993/94

U.S. coarse grain exports are projected at 48.3 million tons, a drop of 5 million tons, mainly due to lower corn shipments. This would result in a slight reduction in the U.S. share of the world coarse grain market, from 59 percent in 1992/93 to 58 percent. Weak import demand is expected to be more of a factor in reducing prospective U.S. exports than gains in competitor sales.

U.S. corn exports are projected to fall 11 percent to 39.5 million tons. The steep reduction in import needs in southern Africa will primarily affect trade with the United States, the main supplier to this region in the last 2 years. Weaker import prospects for South Korea, Eastern Europe, and the FSU also contribute to the poor export outlook.

No change is expected in U.S. barley and sorghum exports, projected at 1.7 million and 7 million tons, respectively. Barley sales will again move primarily under the EEP. Most U.S. shipments are destined for North Africa and Middle Eastern destinations.

Table 6--World coarse grain trade: Major exporters and importers, by commodity, 1990/91-1993/94 1/

Item	1990/91	1991/92	1992/93 2/	1993/94 3/
Million metric tons				
CORN				
Exporters:				
U.S.	44.5	40.6	44.5	39.5
Argentina	3.6	5.9	6.7	6.0
China	6.6	9.3	9.0	8.5
Thailand	1.2	0.4	0.1	0.3
South Africa	0.7	0.8	0.0	0.4
Others	2.1	4.6	2.0	1.5
Total	58.7	61.6	62.3	56.2
Importers:				
Japan	16.3	16.5	16.4	16.2
Former USSR	11.5	10.3	8.0	7.0
EC-12	3.1	1.8	2.0	2.0
Korea, Rep.	5.6	6.2	7.0	6.5
Taiwan	5.3	5.4	5.4	5.4
Mexico	1.9	1.1	1.0	1.0
China	0.0	0.0	0.0	0.0
Eastern Europe	1.3	0.1	1.0	0.4
Brazil	0.9	0.5	0.4	0.4
Egypt	1.9	1.3	1.3	1.3
Others	10.9	18.4	19.8	16.0
Total	58.7	61.6	62.3	56.2
SORGHUM				
Exporters:				
U.S.	5.8	7.5	7.0	7.0
Argentina	1.3	1.3	1.6	1.4
Australia	0.3	0.2	0.0	0.2
Others	0.4	0.4	0.4	0.3
Total	7.8	9.4	9.0	8.9
Importers:				
Japan	3.6	3.3	3.4	3.3
Mexico	3.0	5.0	4.5	4.5
Taiwan	0.1	0.1	0.1	0.1
Venezuela	0.0	0.0	0.0	0.0
Israel	0.2	0.2	0.2	0.3
Former USSR	0.0	0.0	0.0	0.0
Others	0.9	0.8	0.8	0.7
Total	7.8	9.4	9.0	8.9
BARLEY				
Exporters:				
EC-12	7.1	8.3	7.5	7.5
Canada	4.3	3.4	2.5	3.0
Australia	2.8	2.0	3.0	2.5
U.S.	1.5	2.1	1.7	1.7
Others	2.1	2.8	1.3	1.5
Total	17.8	18.6	16.0	16.2
Importers:				
Saudi Arabia	4.2	6.5	5.3	5.0
Former USSR	4.9	5.3	2.9	2.5
Eastern Europe	1.2	0.3	0.7	0.4
Japan	1.5	1.5	1.5	1.5
Others	6.0	5.0	5.6	6.8
Total	17.8	18.6	16.0	16.2
COARSE GRAINS TOTAL TRADE				
	87.3	93.2	90.4	83.8

1/ October-September year, excludes intra-EC trade.
Totals might not add because of rounding. 2/ Forecast.
3/ Projected.

Competitor Exports Likely To Shrink in 1993/94

Aggregate competitor coarse grain exports are projected to fall 4 percent to 35.7 million tons. China is expected to remain the largest foreign corn exporter, with exports projected at 8.5 million tons, down from 9 million in 1992/93. Reports of large stocks and recent decentralization of the government's export monopoly tend to support continuation of high corn exports. On the other hand, market reforms and very rapid economic growth suggest that internal corn demand could soon grow large enough to erode exports, or perhaps stimulate some corn imports into deficit areas.

Small declines in Argentina's 1993/94 corn and sorghum exports are initially projected, but prospects will mainly hinge on crops that will not be planted until much later this year. In 1992/93, Argentina's corn exports are forecast to be the highest since the mid-1980's at 6.7 million tons, a 14-percent gain over the previous year. Argentina's sorghum exports are expected to rise 23 percent in 1992/93 to 1.6 million tons, also the highest since the mid-1980's.

After no exports in 1992/93, South Africa is forecast to export 400,000 tons of corn in 1993/94, with potential destinations in neighboring African countries. However, no exports are likely until late in the year, assuming the outlook for its new crop is favorable. An increase is also expected in Thailand's corn exports, which are projected to triple to 300,000 tons in 1993/94. This reflects some easing in growth in domestic corn demand, stemming from a slower pace of poultry exports to Japan. In 1992/93, Thailand's exports are forecast at only 100,000 tons, the lowest in at least 30 years, while corn imports are forecast at 200,000 tons.

EC barley exports are expected to remain unchanged in 1993/94 at 7.5 million tons, preserving EC dominance of the world barley trade. EC corn exports are projected at 500,000 tons, above normal because of very large stocks, but a decline from 1 million tons forecast in 1992/93.

Canada's barley exports are projected to increase from 2.5 million tons in 1992/93 to 3 million, reflecting both an increase in the size of its harvest and improved quality. This will increase exportable supplies of malting barley. Conversely, Australia's barley exports are expected to decline 500,000 tons to 2.5 million, because of a forecast reduction in production.

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Prospects for U.S. Corn and Sorghum Under NAFTA

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Abstract: Recent ERS research indicates that U.S. corn and sorghum exports will gain under the North America Free Trade Agreement (NAFTA). As trade barriers are reduced and Mexican incomes rise, U.S. corn exports, in particular, are expected to increase, boosting U.S. revenue about \$400-500 million above a "no-NAFTA" scenario by 2008, the expected end of the transition period for corn. Because the results presented here are conditioned on assumptions about income growth, reductions in Mexican support prices, and other factors, they should be taken only as general indicators.

Keywords: NAFTA, Mexico, corn, sorghum, feed grain trade, livestock and meat trade.

The North American Free Trade Agreement (NAFTA) represents an opportunity to eliminate, to a great extent, trade and investment barriers between the United States and Mexico. Under the NAFTA, nontariff barriers for most agricultural goods would be eliminated immediately and replaced with either a tariff-rate quota or an ordinary tariff that would be phased out over time. All tariffs would be eliminated within a maximum of 15 years. Tariffs on the most sensitive goods, such as corn, would be removed over a 15-year period, while tariffs on less sensitive commodities, such as sorghum, would be eliminated immediately. Implementation of the NAFTA, which was signed by former President Bush in December 1992, could begin in 1994, if the agreement is approved by Congress (see box).

Two sectors of U.S. agriculture that would, as a whole, clearly gain from NAFTA are corn and sorghum. Specifically, NAFTA would expand U.S. corn and sorghum exports to Mexico as trade barriers are reduced, Mexican production falls due to lower internal prices, and Mexican incomes rise, stimulating demand for U.S. grains for food and, primarily, as livestock feed. Mexican consumers would likely continue to prefer local white corn for food uses, assuming there are no quality problems with the domestic crop.

According to recent ERS research, the NAFTA will likely result in a revenue gain to the U.S. feed grains sector that would be about \$400-500 million above the level that would otherwise exist by the year 2008, the year that the NAFTA is expected to be fully implemented for all commodities. By that year, U.S. corn and sorghum shipments to Mexico are expected to be about 24 percent above the level that would be expected with no NAFTA.

These results are based on a USDA analysis that estimates the effects of the NAFTA on commodity supply, demand, and prices, taking into account the crucial nature of cross-commodity linkages among crops and livestock. The economic effects to 2008 are measured against a no-NAFTA scenario that is also extended to that year.

U.S. Provides Most of Mexican Grain Imports

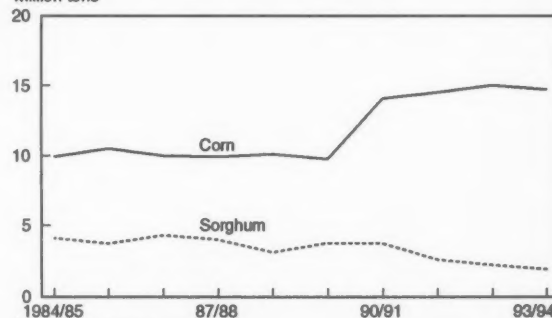
The United States is Mexico's principal supplier of feed grains, accounting for virtually all of Mexico's corn and sorghum imports in recent years. Mexico's imports of these commodities are quite variable and depend largely on the effects of weather and Mexico's pricing policies on production. In general, Mexico's imports of a particular grain are highest when the support price for that commodity is relatively low, prompting a drop in production, or when Mexican production is low due to poor weather.

Corn is of great political importance as it is the most widely grown crop in Mexico and is also the main staple grain, used primarily in tortillas. Because of its importance, a complex system of subsidies, tariffs, and trade barriers have evolved in Mexico. Specifically, to encourage corn production, a price support program guarantees the purchase of the domestic corn crop at a fixed minimum price (the guaranteed price). This price has been raised substantially in recent years and, in 1992, equalled more than \$6 per bushel for white corn (the predominant type of corn grown in Mexico). In addition, import license requirements keep the internal producer price significantly higher than world market prices.

Figure A-1

Mexico Corn and Sorghum Production¹

Million tons



¹ Forecast for 1992/93 and 1993/94.

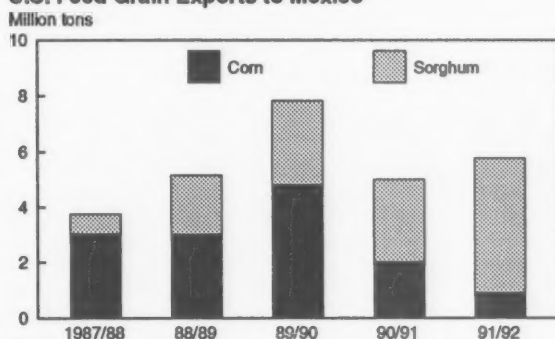
Marketing and consumption subsidies help bridge the producer-consumer price gap in order to allow the purchase of cheap tortillas by low-income consumers. Policy instruments include price controls imposed on processors, as well as direct subsidies for the purchase of tortillas and other processed items by low-income consumers. Further, Mexican law restricts the feeding of corn to livestock and poultry to ensure its availability for food uses.

CONASUPO, the Mexican Government's agricultural marketing agency, is the principal importer of food-use corn, which makes up most of Mexico's corn imports. Because of the important role of CONASUPO, as well as the use of import licenses, the Mexican Government can control import quantities to ensure that imports will not undermine the market for Mexico's corn. For crop year 1991/92 (September-August), U.S. corn exports to Mexico amounted to about 915,000 metric tons, valued at \$105 million. Imports accounted for about 6 percent of Mexican supplies.

Due to Mexico's corn-feeding restrictions, most U.S. corn shipments to Mexico are destined for end use in tortillas and other foods. White corn is preferred, but U.S. exportable supplies are generally small and not always available in the quantities Mexico needs in times of crop shortfall. Typically, high-grade U.S. yellow corn is imported in these cases for food use. Although food use is by far the most important end-use destination for Mexico's corn imports, a limited number of import licenses have been issued to the livestock industry for feed corn imports. Some U.S. corn is also destined for use in industry, particularly in wet milling.

Because of Mexico's restrictions on using corn for feed, sorghum is the most important livestock and poultry feed there. In crop year 1991/1992 (September-August), sorghum was the most significant U.S. commodity shipped to Mexico, as it has been in most recent years, with exports of nearly 4.9 million metric tons valued at \$551 million. These imports accounted for nearly 60 percent of Mexican supplies. The import demand for sorghum soared in Mexico between 1990 and 1992 due to higher poultry production and declining sorghum production.

Figure A-2
U.S. Feed Grain Exports to Mexico¹



¹ September-August marketing year.

The decline in sorghum production in Mexico stems from major policy changes for grains that began in 1989, and comprise a partial move toward greater market orientation. For basic commodities other than corn and dry beans, the government eliminated the traditional producer guaranteed price system. A new system of agreement prices was established in 1989 for sorghum (as well as for wheat, rice, barley, and soybeans). Under this new system, a price, or a system to set the price, is negotiated between producers and industrial users, with intervention by the government. The agreement price for sorghum is currently based upon a 15-day moving average of U.S. prices, with account taken of transportation differentials and the seasonal import tariff.

More market-oriented prices for sorghum and other grains, and recent increases in the guaranteed price for corn, have caused corn to be a relatively more attractive planting alternative in the last few years. For example, the corn-to-sorghum price ratio in Mexico in 1988 was 1.27 to 1, and it has increased to 1.63 to 1 in 1992. This situation has led to a shift in acreage out of sorghum and into corn production (fig. A-1). Consequently, Mexico's corn imports have fallen in the 1990's, while sorghum imports have increased dramatically (fig. A-2).

From the U.S. perspective, exports to Mexico are currently a fairly small part of the total U.S. export picture for corn, but not for sorghum. On average, U.S. corn exports to Mexico accounted for 5 percent of total U.S. exports from 1989 to 1991. In contrast, Mexico accounted for more than 50 percent, on average, of U.S. sorghum exports during the same period. Mexico was by far the largest importer of U.S. sorghum in 1990 and 1991, and it has surpassed Japan as the leading U.S. market.

The United States' proximity to Mexico, as well as U.S. export programs, have helped maintain U.S. shipments to Mexico over the past decade. U.S. corn and sorghum shipments to Mexico under GSM-102 credit guarantees in fiscal year 1992 totaled \$411 million. In fiscal years 1991 and 1992, Mexico was the second-largest recipient of GSM-102 guarantees, following only the former Soviet Union in importance. GSM-102 and GSM-103 will not be affected by the NAFTA.

Benefits to U.S. Corn To Be Greatest

Due to its highly protected status in Mexico, corn will receive the longest phase-out period of any commodity in the NAFTA, 15 years. At the outset, the NAFTA will guarantee the United States duty-free access for 2.5 million metric tons of corn annually in the Mexican market. This access will grow 3 percent each year for the duration of the 15-year transition period.

A second-tier tariff will be assessed on quantities shipped that exceed the duty-free access level. Specifically, amounts above that level will be initially assessed a tariff equal to \$206 per metric ton, but not less than 215 percent. This initial tariff will be reduced 24 percent during the first 6 years of the NAFTA, then phased out linearly in the following 9 years.

The ERS analysis, which examines the long-run impacts of the NAFTA (see box), assumes that Mexico's subsidies to corn producers will be gradually reduced and that, in particular, the NAFTA will result in the Mexican Government's gradually reducing, over time, the price guaranteed to corn producers. Without a decline in producer prices, the Mexican Government would likely be required to stockpile high-priced Mexican-produced corn, while users would likely buy cheaper U.S. corn. In addition, Mexico is assumed to gradually relax its feeding restrictions on corn as the government's guaranteed price for corn becomes increasingly price-competitive with other feed grains.

Under the NAFTA, higher Mexican incomes are expected to stimulate the demand for meats and, consequently, the demand for feed grains. With lower Mexican corn production—in response to lower internal prices—the excess demand for corn will be made up through imports of U.S. corn. The growth in corn exports to Mexico will likely accrue more rapidly for corn for feed rather than corn for food.

As corn's highly protected status in Mexico is relaxed, U.S. corn exports will realize among the largest gains under the NAFTA. From 1994 to 1997, U.S. corn exports to Mexico are expected to equal the expanding import quota. But as economic growth increases and the second-tier tariff is reduced, Mexico will begin to import amounts above the quota level by the late 1990's. By 2000, U.S. corn exports to Mexico are expected to be nearly 10 percent above the duty-free access level of about 3 million metric tons—even though the duty on those above-quota exports will still be well over 100 percent ad valorem.

By 2008, Mexico's second-tier NAFTA tariff on corn imports from the United States will reach zero, and exports of U.S. corn to Mexico are expected to be approximately 6 million metric tons. This is about 60 percent above the level that is expected without NAFTA. Mexican imports of U.S. corn increase relative to sorghum as the tariff is reduced, and the cost-advantage of using corn in feed rations becomes more attractive when compared with sorghum.

Because sorghum is currently more freely traded, the gains to the United States under the NAFTA are expected to be less than for corn. Under the NAFTA, the current 15-percent seasonal tariff (May 1-December 15) on sorghum would be eliminated immediately. (Shipments for the December 16-April 30 period are already duty-free.) As for corn, increased demand for livestock products will encourage increased sorghum imports from the United States, which are expected to reach nearly 7 million metric tons by the year 2000, slightly above what would be expected in the absence of NAFTA.

The overall effect on the U.S. feed grains sector, in terms of prices and production, should be moderate. Most of the price-enhancing effect would be the result of increased export demand for feed grains. Only small changes are expected in U.S. feed demand, as increased meat exports to Mexico will continue to be a small share of U.S. livestock production. By the year 2008, U.S. corn and sorghum prices are expected to be about 6 cents higher than without a NAFTA. In addition,

U.S. corn and sorghum production are expected to increase slightly when compared with the no-NAFTA scenario.

The Southern Plains will likely benefit more than other corn- and sorghum-producing areas of the United States, due to the region's proximity to Mexico and its access to rail transport to Mexico. In addition, corn and sorghum growers in all regions of the United States would gain from the price-enhancing effect of added shipments to Mexico.

At the margin, the composition of U.S. feed grain exports to Mexico will depend on relative corn and sorghum prices in both the United States and Mexico. Also, Mexico's decision regarding the relaxation of corn feeding restrictions is also very important in determining the corn-sorghum allocation. By 2008, the NAFTA is expected to result in a \$400-500 million increase in U.S. corn and sorghum revenues over the level that would be expected without the NAFTA.

These forecasts are based on assumptions about increases in income and population growth, Mexican tastes and preferences for meat products, Mexico's relaxation of corn feeding restrictions, the rate of decline in its internal support prices, and other factors. Of course, changes in these assumptions will affect the model results, which should be interpreted as general indicators of expected outcomes.

Mexican Poultry and Pork To Increase Demand for U.S. Feed Grains

The actual growth in Mexico's feed grain imports hinges on the factors discussed above, as well as on developments in the Mexican meat and poultry industry and the increased consumption of meat and livestock products. More specifically, the relative amounts of livestock and meat that are produced locally in Mexico with imported feeds, as opposed to imports of meat itself, will depend on costs of production and transportation in the two countries as market barriers are reduced over time.

In general, the NAFTA would likely increase feed demand in Mexico both through lower Mexican feed costs and increased meat production. Increased incomes in Mexico, in addition to increasing the demand for imported meat from the United States, are expected to stimulate Mexican domestic production. The Mexican poultry sector will likely benefit most from these changes, followed by the hog sector. However, only small feed-demand increases are expected from Mexican cattle finishing.

The Mexican poultry industry is expected to benefit from declining grain costs, while protected from imports by prohibitive tariffs on over-quota poultry imports. The prohibitive tariffs would limit the growth in U.S. poultry exports during the 10-year transition period and permit the Mexican industry to take advantage of increased domestic demand for poultry products.

As a relatively highly efficient converter of feed grains, poultry would tend to benefit more than other Mexican livestock sectors from declining grain prices, along with the greater ease of adopting modern production technology than in certain

other livestock industries. Greater investment in Mexico is also anticipated, increasing industry efficiency and making Mexico more competitive with U.S. poultry after corn prices are liberalized.

Despite safeguards limiting the quantity of pork that is allowed to be imported under reduced duties during the first 10 years, there is no limit on the quantity of pork and hogs above the safeguard amount that the United States could export at the current 20-percent duty. The availability of lower priced U.S. pork during the transition period, coupled with moderately lower corn prices, would tend to encourage imports relative to domestic production.

By 2008, U.S. exports of pork and hogs are expected to be almost double the level that would be expected without NAFTA. However, the current trend toward a production structure similar to that in the United States, coupled with falling corn prices in Mexico, would increase the efficiency of the Mexican pork industry. This would likely allow it to hold its own during the transition period, and possibly expand after the elimination of duties on corn, moderating export growth for U.S. pork over time.

Although growth is expected in Mexican cattle production, little growth is expected in the development of a cattle feeding industry. Currently, Mexico consumes primarily lower cost, grass-fed cattle. It is expected that Mexico would continue to raise feeder calves for export to the United States for finishing. To the extent that demand for grain-fed beef increases, Mexico would likely import finished animals from southern Arizona, New Mexico, and Texas for slaughter in Mexico. By 2008, U.S. beef industry revenues are expected to increase by \$200-\$400 million annually, compared with a no-NAFTA scenario.

Although overall U.S. meat exports to Mexico are expected to increase under the NAFTA, the share of total U.S. meat production accounted for by Mexico is expected to be remain fairly small. While U.S. feed grains are expected to gain due to increased grain shipments to Mexico, the impact of the NAFTA on U.S. livestock--and hence internal-U.S. feed grain demand--is expected to be relatively small.

Transition Easier for the United States Than Mexico

The benefits for U.S. grains, as discussed in the above analysis, depend largely on assumptions about income growth in Mexico and on the rapidity and form of internal policy changes there. The greatest potential for U.S. grain export growth occurs with the implementation of the NAFTA, coupled with rapid price policy changes in Mexico. In the long run, the closer Mexico's support prices are to world prices, the greater the U.S. sales potential.

From the Mexican perspective, users of corn and sorghum will be able to consume more at lower prices. On the other hand, lower corn support prices, in particular, will likely push marginal producers in Mexico out of farming. Transition policies in Mexico may be desirable, such as direct income support, so that producers can adjust gradually to the structural changes induced by trade liberalization.

Many unanswered questions remain about the changes that will occur under the NAFTA. In particular, rates of income growth and changes in Mexican income distribution are an uncertainty. Another important uncertainty is the extent to which consumers with higher incomes eat less corn and switch to more wheat, rice, and meat and livestock products, as in many other countries. These uncertainties temper the analytical results presented here and suggest directions for future research.

NAFTA Timetable

Carol Goodloe

The United States, Mexico, and Canada concluded negotiations on the NAFTA last year. The timing of Congressional consideration of the NAFTA is governed by fast-track procedures, which Congress extended in 1991 for agreements signed before June 1, 1993. Under these procedures, former President Bush gave formal notice to Congress on September 18, 1992, of the intent to enter into the agreement. After waiting 90 calendar days from the date of the formal notice, former President Bush signed the agreement on December 17, 1992.

President Clinton has affirmed his support for the NAFTA, provided it is supplemented by additional agreements and domestic actions to address concerns regarding labor, the

environment, and import surges. The Administration is currently involved in negotiating these supplemental agreements with Canada and Mexico. President Clinton's goal remains to submit implementing legislation, along with the supplemental agreements, to the Congress so that the entire NAFTA package can be in place by January 1, 1994.

Once the legislation is submitted, it will be entitled to fast-track treatment, meaning that Congress will vote on the agreement, with no amendments allowed, within 90 session days of Congress. In practice, passage of other trade agreements has taken considerably less time because Congress and the Administration have collaborated on drafting of the implementing legislation.

The Modeling Approach

The NAFTA modeling approach was based on generating Mexican import demand for U.S. grains and livestock. Specifically, the Country Projection and Policy Analysis (CPPA) model, an econometric-based simulation model, was used to analyze the macroeconomic, structural, and policy determinants of grain import demand in Mexico. The CPPA model includes linkages between livestock production and feed demand, cross-commodity and income effects, and an explicit specification of assumptions on the nature and extent of domestic price reform and border policy in Mexico.

The CPPA-generated impacts on Mexican corn and sorghum imports were incorporated as an "export shock" within U.S. crops models of the corn and sorghum sectors. Within these models, adjustments in prices, domestic demand, and production, as well as in corn-sorghum feeding relationships, resulted in a new equilibrium, including a sectorwide revenue impact.

On the livestock and meat side, CPPA forecasts for livestock, along with relative price changes in feeds resulting from NAFTA, were incorporated in the North American Trade Model for Animal Products (NATMAP). NATMAP was then used to derive changes in production and trade

List of Tables and Figures

Text tables

Feed Grain Summary	3
1. Corn supply, disappearance, and stocks, September-February	6
2. Sorghum supply, disappearance, and stocks, September-February	7
3. Barley planting progress through May 16.	8
4. Oats planting progress through May 16	9
5. Corn: Food, seed, and industrial use, 1980/81-1993/94	13
6. World coarse grain trade: Major exporters and importers by commodity, 1990/91-1993/9423	23

Appendix tables

1. Feed grains: Marketing year supply and disappearance, area, and prices, 1986/87-1993/94	31
2. Foreign coarse grains: Supply and disappearance, 1981/82-1993/94	32
3. Corn: Marketing year supply and disappearance, area, and prices, 1986/87-1993/94	33
4. Sorghum: Marketing year supply and disappearance, area, and prices, 1986/87-1993/94	34
5. Barley: Marketing year supply and disappearance, area, and prices, 1986/87-1993/94	35
6. Oats: Marketing year supply and disappearance, area, and prices, 1986/87-1993/94	36
7. Corn: Marketing year supply and disappearance, specified periods, 1986/87-1993/94	37
8. Sorghum: Marketing year supply and disappearance, 1986/87-1993/943	38
9. Barley: Marketing year supply and disappearance, specified periods, 1986/87-1993/94	39
10. Oats: Marketing year supply and disappearance, 1986/87-1993/94.	40
11. Average prices received by farmers, United States, by month, and loan rate, 1984-92	41
12. Cash prices at principal markets, 1986-92	42
13. Feed-price ratios for livestock, poultry, and milk, by month, 1983-92	43
14. Price trends, selected feeds, and corn products.	44
15. Corn, sorghum, barley, and oats exports, 1990/91 to date	46
16. Corn, sorghum, barley, and oats exports, 1990/91 to date	47
17. Shipments of grain on the Illinois waterway and the47 Mississippi River (Locks 11-22), 1981/82-1992/9348	48
18. Barge rates for grain shipments to New Orleans, Louisiana	48
19. Weekly average of rail car loadings of grain and soybeans, 1980/81-1992/93	49
20. Rail-freight-rate index for grain, crop years 1980/81-1992/93.	49
21. Hay (all): Acreage, supply, and disappearance, 1986/87-1993/94	50
22. Hay: Average prices received by farmers, United States, by month, 1983/84-1992/93	50
23. Processed feeds: Quantity fed 1984-92.	51

Figures

1. Feed Grain Supplies Remain Large.	4
2. Corn Planting Progress Through May 16	5
3. Monthly Corn Prices	6
4. Sorghum Planting Progress Through May 16.	7
5. Season-Average Farm Prices	8
6. Malting and Feed Barley Price Gap	9
7. Oats Food and Industrial Uses	10
8. Hay Disappearance per RCAU	11
9. Alfalfa and Other Hay Price Gap	11
10. Feed Use of Grains and Animal Units.	12
11. Corn and Corn Milling-Byproduct Values.	13
12. Protein Feed Prices	14
13. Wet Mill Product Prices	14
14. Railcar Unloadings of Grain	15
15. Railcar Loadings of Grain and Soybeans	15
16. Rail Rate Index for Grain.	16

17.	Monthly Grain Shipments	16
18.	Barge Rates to New Orleans	16
19.	River Stages at St. Louis	16
20.	River Stages at Sioux City	17
21.	River Stages at Kansas City	17
22.	Foreign Coarse Grains Area and Yield	18
23.	EC Coarse Grains Area and Yield	18
24.	EC Coarse Grains Production and Consumption	19
25.	World Coarse Grain Trade and U.S. Market Share	21
A-1.	Mexico Corn and Sorghum Production	24
A-2.	U.S. Feed Grain Exports to Mexico	25

Appendix table 1--Feed grains: Marketing year supply and disappearance, area, and prices, 1986/87-1993/94 1/

Year 2/	Supply			Disappearance			Ending stocks		
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	-Domestic use- Feed and residual	Govt. owned 3/	Privately owned 3/	Total
					Million metric tons	Million metric tons			
1986/87	126.4	251.6	0.7	378.7	35.0	14.4	48.7	103.4	152.1
1987/88	152.1	216.5	1.0	369.6	35.9	14.3	34.1	99.5	133.6
1988/89	133.6	149.3	1.2	284.2	37.5	18.5	18.6	47.3	65.9
1989/90	65.9	221.0	1.3	288.2	39.2	13.7	10.5	35.0	45.5
1990/91	45.5	230.5	1.1	277.3	39.5	13.5	11.3	36.4	47.7
1991/92	47.7	218.4	2.1	268.2	41.6	11.8	1.3	30.7	34.0
1992/93 4/	34.0	277.4	1.1	312.5	43.6	15.0	1.3	62.0	63.3
1993/94 5/	63.3	245.0	1.5	309.8	45.0	14.8	1.3	61.9	61.9

Year 2/	Area			Yield			Government- support program		
	Set-aside diverted 6/	Planted	Harvested for grain	per hectare	Average price received by farmers 7/	Total payments to participants 8/			
		Million hectares		Metric tons	1977=100	\$ million			
1986/87	7.4	48.4	41.1	6.12	73	7.281			
1987/88	12.5	43.2	35.2	6.16	97	8.447			
1988/89	11.1	41.2	32.6	4.59	129	3.111			
1989/90	6.7	42.9	36.8	6.00	118	3.918			
1990/91	6.9	41.8	36.2	6.36	112	3.400			
1991/92	5.1	42.3	37.2	5.87	117	2.458			
1992/93	4.2	43.9	38.9	7.13		4.198			

1/ Aggregated data on corn, sorghum, barley, and oats. 2/ The marketing year for corn and sorghum begins September 1; for oats and barley June 1. 3/ Includes total government loans (original and resale). 4/ Preliminary. 5/ Projected. 6/ Includes diversion, acreage reduction, 0-92, and 50-92 programs. 7/ Excludes support payments. 8/ Deficiency and diversion payments.

Appendix table 2--Foreign coarse grains: Supply and disappearance, 1981/82-1993/94 1/

Year	Beginning stocks	Production	Feed	Total disappearance	Imports	Adjusted imports 2/	Ending stocks
Million metric tons							
Corn:							
1981/82	50.1	235.2	177.9	291.5	77.9	67.3	44.6
1982/83	44.6	230.7	175.7	281.6	72.9	63.3	39.9
1983/84	39.9	241.7	168.9	288.8	64.2	61.1	40.7
1984/85	40.7	264.3	185.1	303.5	72.5	66.5	48.5
1985/86	48.5	253.9	187.4	291.0	61.6	54.2	42.3
1986/87	42.3	266.2	193.8	307.3	59.1	56.6	39.0
1987/88	39.0	269.2	201.5	313.9	62.5	56.6	37.9
1988/89	37.9	275.4	215.1	327.6	73.6	65.4	37.0
1989/90	37.0	268.9	221.5	330.9	81.9	74.4	35.8
1990/91	35.8	275.6	195.9	315.2	62.0	58.7	40.0
1991/92	40.0	294.5	210.2	323.9	73.3	61.1	50.3
1992/93 3/	50.3	287.5	205.2	332.9	62.7	62.2	48.6
1993/94 4/	48.6	286.2	209.6	335.7	61.6	56.1	38.4
Sorghum:							
1981/82	8.2	48.2	28.3	55.5	14.3	13.7	7.5
1982/83	7.5	43.9	25.0	50.5	12.3	11.6	6.2
1983/84	6.2	46.2	25.6	52.0	13.0	13.0	6.6
1984/85	6.6	43.8	25.8	51.9	12.8	13.1	6.1
1985/86	6.1	41.7	24.6	47.3	9.6	8.8	5.0
1986/87	5.0	40.5	23.0	46.3	7.9	7.8	4.3
1987/88	4.3	37.7	22.2	44.9	8.6	8.3	3.0
1988/89	3.0	39.9	23.5	46.0	11.1	10.6	4.8
1989/90	4.8	39.4	21.6	47.2	9.2	9.0	4.7
1990/91	4.7	37.8	21.0	44.3	8.0	7.8	4.0
1991/92	4.0	36.5	21.8	43.1	9.8	9.4	4.8
1992/93 3/	4.8	39.9	21.5	46.8	9.0	9.0	4.9
1993/94 4/	4.9	37.6	21.5	45.6	8.9	8.9	3.9
Barley:							
1981/82	16.2	139.2	105.4	143.8	20.3	13.9	13.6
1982/83	13.6	150.0	108.4	147.1	17.2	13.1	17.2
1983/84	17.2	147.2	115.8	154.2	20.2	16.4	12.0
1984/85	12.0	157.4	115.9	152.4	22.9	17.9	18.4
1985/86	18.4	159.9	120.4	156.3	22.1	18.2	22.3
1986/87	22.3	163.4	125.7	162.5	24.1	18.4	26.0
1987/88	26.0	162.5	128.4	166.5	20.8	15.7	24.4
1988/89	24.4	156.4	117.0	155.9	20.1	15.6	26.4
1989/90	26.4	155.9	121.0	159.8	21.0	16.6	24.1
1990/91	24.1	168.8	125.5	166.0	22.1	17.4	28.4
1991/92	28.4	158.9	120.9	161.1	22.6	18.1	27.6
1992/93 3/	27.6	154.7	118.1	156.8	20.5	15.8	27.0
1993/94 4/	27.0	153.7	119.2	158.4	20.1	15.8	23.6
Total coarse grains: 5/							
1981/82	82.1	512.2	353.6	580.4	114.7	97.1	73.1
1982/83	73.1	524.5	359.0	576.2	103.7	89.3	73.6
1983/84	73.6	540.3	365.9	598.2	99.0	92.5	71.2
1984/85	71.2	569.1	378.8	609.0	110.8	99.3	86.7
1985/86	86.7	558.3	388.7	598.0	95.1	81.3	82.3
1986/87	82.3	570.0	395.0	615.0	93.1	82.1	82.6
1987/88	82.6	566.7	404.4	622.1	93.6	83.6	78.3
1988/89	78.3	571.2	405.1	627.5	106.9	93.5	81.9
1989/90	81.9	568.9	413.7	641.0	113.7	101.6	78.3
1990/91	78.3	589.1	397.4	629.0	93.4	85.5	88.5
1991/92	88.5	581.5	398.6	622.4	107.9	91.0	95.1
1992/93 3/	95.1	576.4	385.8	631.1	94.8	89.3	91.9
1993/94 4/	91.9	571.4	390.1	633.2	92.2	82.2	76.7

1/ Aggregated on basis of local marketing years, except for adjusted imports. 2/ Based on Oct./Sept. trade year and excludes intra-EC trade. 3/ Forecast. 4/ Projected. 5/ Includes oats, rye, millet, and mixed grains.

Source: Compiled from World Grain Situation and Outlook, Foreign Agricultural Service, and USDA data.

Appendix table 3--Corn: Marketing year supply and disappearance, area, and prices 1986/87-1993/94

Year beginning September 1	Begin- ning stocks	Supply		Disappearance				Ending stocks Aug. 31					
		Produc- tion	Imports	Total	Food, alcohol, and industrial	Domestic use— Seed and residual	Exports	Total disap- pearance	Govt. owned	Privately owned 1/	Total		
Million bushels													
1986/87	4,039.5	8,225.8	1.8	12,267.0	1,206.8	16.7	4,669.4	5,892.9	1,492.5	7,385.3	1,443.2	3,438.5	4,881.7
1987/88	4,881.7	7,131.3	3.4	12,016.4	1,226.0	17.2	4,797.7	6,040.9	1,716.4	7,757.3	835.0	3,424.1	4,259.1
1988/89	4,259.1	4,928.7	2.8	9,190.6	1,275.0	18.4	3,941.0	5,234.4	2,025.8	7,260.1	362.5	1,567.9	1,930.4
1989/90	1,930.4	7,525.5	1.9	9,457.8	1,337.0	18.9	4,389.2	5,745.1	2,368.2	8,113.4	233.0	1,111.5	1,344.5
1990/91	1,344.5	7,934.0	3.4	9,281.9	1,353.7	19.3	4,663.0	6,036.1	1,724.6	7,760.7	371.1	1,150.1	1,521.2
1991/92	1,521.2	7,475.5	19.6	9,016.4	1,433.8	20.2	4,877.9	6,331.9	1,584.1	7,916.1	112.5	987.8	1,100.3
1992/93 2/	1,100.3	9,478.9	4.0	10,583.2	-----1,495.0-----	-----	5,250.0	6,745.0	1,725.0	8,470.0	45.0	2,068.2	2,113.2
1993/94 3/	2,113.2	8,500.0	5.0	10,618.2	-----1,550.0-----	-----	5,400.0	6,950.0	1,550.0	8,500.0	-----	-----	2,118.2

	Set-aside and diverted 4/	Area		Yield per harvested acre	Average prices				Government-support program		
		Planted	Harvested by grain		Received by farmers 5/	Average prices			National loan rate	Target price	Total payments to participants 6/
						Average prices					
						St. Louis No. 2 yellow	Omaha No. 2 yellow	Gulf Ports No. 2 yellow			
Million acres		Bushe/s		\$/bu.			\$ million				
1986/87	12.7	76.6	68.9	119.4	1.50	1.68	1.53	1.83	1.92	3.03	6,328
1987/88	23.2	66.2	59.5	119.8	1.94	2.19	1.98	2.39	1.82	3.03	7,378
1988/89	20.5	67.7	58.3	84.6	2.54	2.72	2.49	2.93	1.77	2.93	2,728
1989/90	10.8	72.2	64.7	116.3	2.36	2.58	2.41	2.79	1.65	2.84	3,504
1990/91	10.7	74.2	67.0	118.5	2.28	2.49	2.28	2.67	1.57	2.75	3,015
1991/92	7.5	76.0	68.8	108.6	2.37	2.53	2.36	2.74	1.63	2.75	2,080
1992/93	5.3	79.3	72.1	131.4	2.00-2.15				1.72	2.75	3,720

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Projected. 4/ Includes diversion, acreage reduction, 0-92, and 50-92 programs. 0-92 and 50-92 set-asides include idled acreage and acreage planted to minor oilseeds. 5/ Excludes support payments. 6/ Deficiency and version payments.

Appendix table 4--Sorghum: Marketing year supply and disappearance, area, and prices, 1986/87-1993/94

Year beginning September 1	Supply			Disappearance				Ending stocks Aug. 31	
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Domestic use Seed and residual	Total	Govt. owned	Privately owned
Million bushels									
1986/87	551.0	938.9	0.0	1,489.9	10.4	1.6	536.2	548.2	198.3
1987/88	743.3	730.8	0.0	1,474.1	23.5	1.3	555.1	579.9	231.6
1988/89	662.7	576.7	0.0	1,239.3	20.5	1.5	466.3	488.3	311.5
1989/90	439.5	615.4	0.2	1,055.2	13.6	1.3	517.3	532.2	303.2
1990/91	219.8	573.3	0.1	793.1	7.3	1.4	409.6	418.4	232.2
1991/92	142.6	584.9	0.0	727.5	6.8	1.7	374.0	382.5	291.7
1992/93 2/	53.2	884.0	0.0	937.2	-----	7.5	475.0	482.5	275.0
1993/94 3/	179.7	660.0	0.0	839.7	-----	8.0	425.0	433.0	275.0
								708.0	131.7

	Area		Yield per acre harvested	Average prices					Government support program			
	Set-aside and diverted 4/	Planted		Harvested for grain	Received by farmers 5/	Kansas City No. 2 yellow		Texas No. 2 yellow	Gulf Ports No. 2 yellow	National average loan rate	Target price	Total payments to participants 6/
						-\$/cwt-						
						-\$ million						
-----Million acres-----												
1986/87	2.9	15.3	13.9	2.45	2.73	3.24	3.22	3.25	5.14	570		
1987/88	4.1	11.8	10.5	3.04	3.40	3.81	3.96	3.11	5.14	708		
1988/89	3.9	10.3	9.0	4.05	4.17	4.66	4.81	3.00	4.96	325		
1989/90	3.3	12.6	11.1	3.75	4.21	4.38	4.76	2.80	4.82	391		
1990/91	3.3	10.5	9.1	3.79	4.08	4.48	4.65	2.66	4.66	317		
1991/92	2.4	11.1	9.9	4.01	4.36	4.78	4.86	2.75	4.66	175		
1992/93	2.0	13.3	12.2	3.21-3.48				2.91	4.66	327		

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Protected. 4/ Includes diversion, acreage reduction, 0-92, and 50-92 programs. 5/ Excludes support payments. 6/ Excludes support payments. 5/ Excludes support payments. 6/ Excludes support payments.

Appendix table 6--Oats: Marketing year supply and disappearance, area, and prices, 1986/87-1993/94

Year beginning June 1	Supply				Disappearance				Ending stocks May 31				
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Domestic use		Exports	Total disap- pearance	Govt. owned	Privately owned 1/	Total	
						Seed and residual	Feed						
Million bushels													
1986/87	183.7	385.0	32.4	601.0	45.0	38.0	384.5	467.5	0.9	468.4	3.5	129.1	132.6
1987/88	132.6	373.7	45.7	552.0	49.8	31.6	358.2	439.6	0.5	440.1	3.5	108.4	111.9
1988/89	111.9	217.6	62.9	392.4	72.7	27.1	193.8	293.6	0.6	294.2	2.4	95.9	98.3
1989/90	98.3	373.6	66.4	538.3	91.6	23.4	265.6	380.6	0.8	381.4	0.7	156.2	156.9
1990/91	156.9	357.5	63.4	577.8	100.9	19.1	286.0	406.0	0.6	406.6	0.3	170.9	171.2
1991/92	171.2	243.5	74.8	489.4	107.3	17.7	234.8	359.8	1.9	361.7	0.2	127.5	127.7
1992/93 2/	127.7	294.6	50.0	472.3	-----125.0-----		230.0	355.0	6.0	361.0	0.0	111.3	111.3
1993/94 3/	111.3	245.0	65.0	421.3	-----125.0-----		185.0	310.0	5.0	315.0			106.3

Set-aside and diverted 4/	Area		Yield per acre harvested	Average prices			Government support program						
	Planted	Harvested for grain		Received by farmers 5/	Minneapolis No. 2 white, heavy	Portland No. 2 white, heavy	Toledo No. 2	National average loan rate	Target price	Total payments to participants 6/			
-----Million acres-----										-----\$/bu.-----		-----\$ million-----	
1986/87	0.5	14.7	6.8	1.21	1.46	1.53	1.20	0.99	1.60	32			
1987/88	0.8	17.9	6.9	1.56	1.92	1.76	1.68	0.94	1.60	26			
1988/89	0.3	13.9	5.5	2.61	2.80	2.23	2.26	0.90	1.55	4			
1989/90	0.3	12.1	6.9	1.49	1.65	1.63	1.40	0.85	1.50	0			
1990/91	0.2	10.4	5.9	1.14	1.30	1.57	1.17	0.81	1.45	8			
1991/92	0.6	8.7	4.8	1.21	1.47	1.60	1.37	0.83	1.45	30			
1992/93	0.7	8.0	4.5	1.33				0.87	1.45	16			

NA = Not available.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Projected. 4/ Includes diversion, acreage reduction, 0-92, and 50-92 programs; 0-92 and 50-92 set-asides include idled acreage and acreage planted to minor oilseeds. 5/ Excludes support payments. 6/ Deficiency and diversion payments.

Appendix table 7--Corn: Marketing year supply and disappearance, specified periods, 1986/87-1993/94

Year beginning September 1	Supply			Disappearance			Ending stocks		
	Begin- ning stocks	Produc- tion	Imports Total	Food, alcohol, and industrial	Domestic use and residual	Exports Total	Govt. owned 1/	Privately owned 1/	Total
Million bushels									
1986/87:									
Sept.-Nov.	4,039.5	8,225.8	0.7	12,266.0	0.0	1,354.7	1,642.3	1,960.5	9,337.3
Dec.-Feb.	10,305.5	---	0.2	277.3	0.0	1,467.3	1,744.6	2,057.5	6,886.0
Mar.-May	8,248.2	---	0.4	318.4	16.4	1,085.6	1,420.4	1,916.4	6,332.2
June-Aug.	6,332.2	---	0.4	323.5	0.3	761.8	1,085.6	1,450.9	4,881.7
Mkt. year	4,039.5	8,225.8	1.8	12,267.0	16.7	4,669.4	5,892.9	7,385.3	4,881.7
1987/88:									
Sept.-Nov.	4,881.7	7,131.3	0.6	12,013.6	0.0	1,551.6	1,847.0	2,242.6	9,771.0
Dec.-Feb.	9,771.0	---	0.7	285.3	0.0	1,446.1	1,731.4	2,136.1	8,087.6
Mar.-May	7,635.0	---	1.4	318.6	16.7	952.8	1,288.1	1,797.8	5,867.9
June-Aug.	5,839.2	---	0.8	326.7	0.5	847.2	1,174.4	1,580.9	4,539.2
Mkt. year	4,881.7	7,131.3	3.4	12,016.4	17.2	4,797.7	6,040.9	7,757.3	4,259.1
1988/89:									
Sept.-Nov.	4,259.1	4,928.7	0.6	9,188.4	0.0	1,340.9	1,646.1	2,116.8	7,071.6
Dec.-Feb.	7,071.6	---	0.6	294.9	0.0	1,071.5	1,366.4	1,868.2	5,203.9
Mar.-May	5,203.9	---	1.2	333.3	16.7	846.1	1,196.1	1,785.8	3,419.3
June-Aug.	3,419.3	---	0.4	341.6	1.7	682.5	1,025.8	1,489.2	1,930.4
Mkt. year	4,259.1	4,928.7	2.8	9,190.6	18.4	3,941.0	5,234.4	7,260.1	1,930.4
1989/90:									
Sept.-Nov.	1,930.4	7,525.5	0.6	9,456.6	0.0	1,496.6	1,792.2	2,374.5	7,082.1
Dec.-Feb.	7,082.1	---	0.4	306.1	0.0	1,282.2	1,588.3	2,270.1	4,812.4
Mar.-May	4,812.4	---	0.6	4,813.0	16.7	986.5	1,369.2	1,969.8	2,543.9
June-Aug.	2,843.2	---	0.2	2,843.4	2.2	623.9	995.4	1,499.0	1,344.5
Mkt. year	1,930.4	7,525.5	1.9	9,457.8	18.9	4,389.2	5,745.1	8,113.4	1,344.5
1990/91:									
Sept.-Nov.	1,344.5	7,934.0	0.9	9,279.4	0.0	1,636.5	1,958.2	2,339.1	6,940.3
Dec.-Feb.	6,940.3	---	0.3	315.7	0.0	1,365.2	1,680.9	2,151.6	4,789.0
Mar.-May	4,789.0	---	0.8	351.5	17.6	975.1	1,344.2	1,797.8	2,556.1
June-Aug.	2,992.0	---	1.5	364.8	1.7	686.2	1,052.8	1,472.2	1,521.2
Mkt. year	1,344.5	7,934.0	3.4	9,281.9	19.3	4,663.0	6,036.1	7,760.7	1,521.2
1991/92:									
Sept.-Nov.	1,521.2	7,475.5	6.5	9,003.2	0.0	1,692.1	2,040.8	2,452.1	6,541.1
Dec.-Feb.	6,541.1	---	4.4	6,545.5	0.0	1,278.5	1,622.9	1,984.5	4,561.0
Mar.-May	4,561.0	---	5.4	4,566.4	19.9	1,068.0	1,456.4	1,891.8	2,738.6
June-Aug.	2,738.6	---	3.3	2,741.9	0.3	839.4	1,211.9	1,641.6	1,100.3
Mkt. year	1,521.2	7,475.5	19.6	9,016.4	20.2	4,877.9	6,331.9	7,916.1	1,100.3
1992/93:									
Sept.-Nov.	1,100.3	9,478.9	1.3	10,580.5	0.0	1,826.8	2,186.6	2,674.1	7,906.4
Dec.-Feb.	7,906.4	---	1.0	7,907.4	0.0	1,415.6	1,765.7	2,228.8	5,591.8
June-Aug.	---	---	---	---	---	---	---	---	---
Mkt. year 2/	1,100.3	9,478.9	4.0	10,583.2	---	5,250.0	6,745.0	8,470.0	2,113.2
1993/94:									
Mkt. year 3/	2,113.2	8,500.0	5.0	10,618.2	---	5,400.0	6,950.0	8,500.0	2,118.2

--- Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Projected.

Appendix table 8--Sorghum: Marketing year supply and disappearance, 1986/87-1993/94

Year beginning September 1	Supply			Disappearance				Ending stocks					
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Domestic use ¹		Exports	Total disap- pearance	Govt. owned	Privately owned 1/	Total	
						Seed	Feed and residual						
Million bushels													
1986/87:													
Sept.-Nov.	551.0	938.9	0.0	1,489.9	2.8	0.0	180.4	183.3	47.5	230.7	292.1	967.1	1,259.2
Dec.-Feb.	1,259.2	---	0.0	1,259.2	2.9	0.0	182.3	185.3	56.2	241.4	364.9	652.8	1,017.7
Mar.-May	1,017.7	---	0.0	1,017.7	2.4	1.0	128.2	131.6	51.2	182.8	400.4	434.6	835.0
June-Aug.	835.0	---	0.0	835.0	2.2	0.6	45.3	48.1	43.5	91.6	408.9	334.4	743.3
Mkt. year	551.0	938.9	0.0	1,489.9	10.4	1.6	536.2	548.2	198.3	746.5	408.9	334.4	743.3
1987/88:													
Sept.-Nov.	743.3	730.8	0.0	1,474.1	4.9	0.0	171.3	176.2	45.5	221.7	465.3	787.1	1,252.4
Dec.-Feb.	1,252.4	---	0.0	1,252.4	5.1	0.0	173.1	178.2	63.1	241.3	545.5	465.6	1,011.1
Mar.-May	1,011.1	---	0.0	1,011.1	4.2	0.8	121.2	126.2	77.1	203.3	511.4	296.4	807.8
June-Aug.	807.8	---	0.0	807.9	9.3	0.5	89.6	99.4	45.8	145.2	463.6	199.1	662.7
Mkt. year	743.3	730.8	0.0	1,474.1	23.5	1.3	555.1	579.9	231.6	811.5	463.6	199.1	662.7
1988/89:													
Sept.-Nov.	662.7	576.7	0.0	1,239.3	5.9	0.0	171.3	177.1	64.5	241.6	432.9	564.8	997.7
Dec.-Feb.	997.7	---	0.0	997.7	6.1	0.0	173.1	179.2	93.5	272.6	396.4	328.7	725.1
Mar.-May	725.1	---	0.0	725.1	5.0	0.8	79.7	85.5	80.6	166.1	363.8	195.2	559.0
June-Aug.	559.0	---	0.0	559.0	3.5	0.7	42.3	46.5	73.0	119.5	340.9	98.6	439.5
Mkt. year	662.7	576.7	0.0	1,239.3	20.5	1.5	466.3	488.3	311.5	799.8	340.9	98.6	439.5
1989/90:													
Sept.-Nov.	439.5	615.4	0.0	1,054.9	3.6	0.0	185.8	189.4	89.9	279.3	314.6	461.0	775.6
Dec.-Feb.	775.6	---	0.0	775.6	4.4	0.0	176.5	180.8	81.2	262.0	290.6	290.6	513.6
Mar.-May	513.6	---	0.1	513.7	2.5	0.7	94.2	97.4	81.3	178.7	190.2	144.8	335.0
June-Aug.	335.0	---	0.1	335.1	3.1	0.6	60.9	64.6	50.8	115.3	162.5	57.3	219.8
Mkt. year	439.5	615.4	0.2	1,055.2	13.6	1.3	517.3	532.2	303.2	835.4	162.5	57.3	219.8
1990/91:													
Sept.-Nov.	219.8	573.3	0.0	793.1	1.8	0.0	222.3	224.1	56.6	280.7	157.7	354.6	512.3
Dec.-Feb.	512.3	---	0.0	512.3	1.9	0.0	116.4	118.3	61.2	179.5	149.6	183.3	332.9
Mar.-May	332.9	---	0.1	332.9	1.8	0.7	32.4	34.9	76.0	110.9	108.4	113.6	222.0
June-Aug.	222.0	---	0.0	222.0	1.8	0.7	38.6	41.0	38.4	79.4	64.7	77.9	142.6
Mkt. year	219.8	573.3	0.1	793.1	7.3	1.4	409.6	418.4	232.2	650.5	64.7	77.9	142.6
1991/92:													
Sept.-Nov.	142.6	584.9	0.0	727.5	2.0	0.0	228.5	230.4	46.5	277.0	34.3	416.2	450.5
Dec.-Feb.	450.5	---	0.0	450.5	1.8	0.0	89.2	91.0	108.2	199.2	19.6	231.6	251.2
Mar.-May	251.2	---	0.0	251.2	1.8	1.1	33.0	35.9	105.0	140.9	14.3	96.1	110.4
June-Aug.	110.4	---	0.0	110.4	1.2	0.6	23.4	25.2	32.0	57.2	8.2	45.0	53.2
Mkt. year	142.6	584.9	0.0	727.5	6.8	1.7	374.0	382.5	291.7	674.3	8.2	45.0	53.2
1992/93:													
Sept.-Nov.	53.2	884.0	0.0	937.2	1.6	0.0	273.8	275.4	56.4	331.9	2.5	602.8	605.3
Dec.-Feb.	605.3	---	0.0	605.3	1.7	0.0	67.9	69.6	101.5	171.0	4.0	430.3	434.3
Mar.-May	---	---	---	---	---	---	---	---	---	---	---	---	---
June-Aug.	---	---	---	---	---	---	---	---	---	---	---	---	---
Mkt. year 2/	53.2	884.0	0.0	937.2	-----7.5-----	---	475.0	482.5	275.0	757.5	2.0	177.7	179.7
1993/94:													
Mkt. year 3/	179.7	660.0	0.0	839.7	-----8.0-----	---	425.0	433.0	275.0	708.0	---	---	131.7

--- Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Projected.

Appendix table 9--Barley: Marketing year supply and disappearance, specified periods, 1986/87-1993/94

Year beginning June 1	Supply			Disappearance			Ending stocks						
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Domestic use		Exports	Total disap- pearance	Govt. owned	Privately owned 1/	Total	
						Seed and residual	Feed						
Million bushels													
1986/87:													
June-Aug.	327.2	608.5	1.3	937.1	42.4	0.0	94.4	136.8	13.5	150.3	56.0	730.8	786.8
Sept.-Nov.	786.8	---	1.0	787.8	36.7	1.3	77.0	110.0	43.5	153.5	66.2	568.1	634.3
Dec.-Feb.	634.3	---	1.2	635.5	36.0	1.4	67.0	104.4	31.8	136.2	75.2	424.1	499.3
Mar.-May	499.3	---	3.1	502.4	41.8	15.2	64.3	121.3	44.8	166.1	75.5	260.8	336.3
Mkt. year	327.2	608.5	6.7	942.4	156.9	17.9	297.7	472.5	133.6	606.1	75.5	260.8	336.3
1987/88:													
June-Aug.	336.3	521.5	1.1	858.9	42.7	0.0	74.3	117.1	16.8	133.9	74.9	650.1	725.0
Sept.-Nov.	725.0	---	2.9	727.9	37.1	1.1	64.8	103.0	42.5	145.5	502.9	582.4	658.5
Dec.-Feb.	582.4	---	4.3	586.7	36.3	1.3	57.0	95.2	33.0	128.2	57.0	401.5	458.5
Mar.-May	458.5	---	3.0	461.5	42.0	13.3	56.5	111.8	28.6	140.4	50.1	271.0	321.1
Mkt. year	336.3	521.5	11.3	869.1	158.1	15.7	253.2	427.0	121.0	548.0	50.1	271.0	321.1
1988/89:													
June-Aug.	321.1	290.0	2.8	613.9	44.0	0.0	93.7	137.7	25.8	163.5	35.9	414.5	450.4
Sept.-Nov.	450.4	---	2.2	452.6	38.4	1.1	28.4	67.8	13.6	80.5	35.9	336.2	372.1
Dec.-Feb.	372.1	---	2.8	374.9	36.2	1.2	41.6	79.1	15.3	94.3	34.1	246.5	280.6
Mar.-May	280.6	---	2.7	283.3	41.8	12.7	7.2	61.7	25.2	86.9	30.4	166.0	196.4
Mkt. year	321.1	290.0	10.5	621.6	160.4	15.0	170.9	346.3	78.9	425.2	30.4	166.0	196.4
1989/90:													
June-Aug.	196.4	404.2	3.6	604.2	45.7	0.0	114.0	159.7	25.5	186.2	36.6	381.3	411.9
Sept.-Nov.	417.9	---	2.0	419.9	39.3	0.9	11.9	52.1	17.2	69.3	36.3	314.3	350.6
Dec.-Feb.	350.6	---	3.3	353.9	37.2	1.1	40.2	78.5	22.7	101.2	32.1	220.6	252.7
Mar.-May	252.7	---	4.2	256.9	39.8	11.5	27.3	78.5	17.6	96.1	19.3	141.5	160.8
Mkt. year	196.4	404.2	13.1	613.7	162.0	13.5	193.3	368.8	84.0	452.9	19.3	141.5	160.8
1990/91:													
June-Aug.	160.8	422.2	1.0	584.0	44.7	0.0	97.6	142.3	30.9	173.2	14.3	386.6	410.9
Sept.-Nov.	410.9	---	1.3	412.1	39.0	1.0	41.2	81.2	25.2	106.4	12.1	293.6	305.7
Dec.-Feb.	305.7	---	4.2	309.9	37.6	1.2	41.6	80.4	18.6	99.0	9.6	201.3	210.9
Mar.-May	210.9	---	7.0	217.9	39.8	12.4	24.3	76.6	6.0	82.5	8.4	127.0	135.4
Mkt. year	160.8	422.2	13.5	596.5	161.1	14.6	204.8	380.5	80.6	461.1	8.4	127.0	135.4
1991/92:													
June-Aug.	135.4	464.3	7.4	607.1	44.7	0.0	109.0	153.7	13.5	167.2	7.7	432.3	440.0
Sept.-Nov.	440.0	---	3.5	443.4	37.8	0.9	39.7	78.4	36.7	115.0	7.0	329.4	328.4
Dec.-Feb.	328.4	---	9.5	346.0	36.5	1.0	56.8	94.3	24.6	119.0	6.8	201.1	215.9
Mar.-May	215.9	---	7.2	223.1	39.0	11.0	24.7	74.7	19.7	94.5	6.5	122.1	128.6
Mkt. year	135.4	464.3	24.5	624.2	158.0	12.9	230.2	401.1	94.5	495.6	6.5	122.1	128.6
1992/93:													
June-Aug.	128.6	456.3	6.6	591.5	42.7	0.0	112.0	154.7	18.4	173.1	5.8	412.6	418.4
Sept.-Nov.	418.4	---	1.5	419.9	37.1	0.9	13.3	51.3	22.0	73.4	5.4	341.2	346.6
Dec.-Feb.	346.6	---	2.5	349.0	35.0	1.0	45.5	51.5	21.9	103.4	5.5	239.1	244.6
Mar.-May	244.6	---	---	247.0	-----	-----	24.1	72.4	17.7	90.1	4.0	152.9	156.9
Mkt. year	128.6	456.3	12.0	596.9	-----	-----	195.0	360.0	80.0	440.0	5.0	151.9	156.9
1993/94:													
Mkt. year 3/	156.9	405.0	20.0	581.9	-----	-----	190.0	355.0	80.0	435.0	---	---	146.9

Appendix table 10--Oats: Marketing year supply and disappearance, 1986/87-1993/94

Year beginning June 1	Supply				Disappearance				Ending stocks			
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Domestic use		Total disap- pearance	Govt. owned	Privately owned	Total	
						Seed and residual	Exports					
												Million bushels
1986/87:												
June-Aug.	183.7	385.0	8.7	577.4	13.1	12.5	0.0	125.6	0.2	449.1	451.5	
Sept.-Nov.	451.5	---	4.8	456.3	11.5	97.8	4.6	113.9	0.3	339.0	342.2	
Dec.-Feb.	342.2	---	9.2	351.4	11.1	90.5	1.1	102.8	0.1	244.9	248.5	
Mar.-May	248.5	---	9.6	258.1	9.3	83.7	32.3	125.2	0.3	129.1	132.6	
Mkt. year	183.7	385.0	32.4	601.0	45.0	384.5	38.0	467.5	0.9	129.1	132.6	
1987/88:												
June-Aug.	132.6	373.7	7.0	513.3	14.5	104.8	0.0	119.3	0.2	390.5	393.8	
Sept.-Nov.	393.8	---	8.1	401.9	12.7	91.1	3.8	107.6	0.1	290.7	294.1	
Dec.-Feb.	294.1	---	15.8	309.9	12.3	84.3	0.9	97.6	0.1	208.8	212.2	
Mar.-May	212.2	---	14.8	227.0	10.2	77.9	26.9	115.0	0.1	108.4	111.9	
Mkt. year	132.6	373.7	45.7	552.0	49.8	358.2	31.6	439.6	0.5	108.4	111.9	
1988/89:												
June-Aug.	111.9	217.6	12.3	341.8	21.2	56.7	0.0	77.9	0.2	260.7	263.7	
Sept.-Nov.	263.7	---	11.9	275.6	18.6	49.3	3.3	71.1	0.1	201.9	204.4	
Dec.-Feb.	204.4	---	20.1	224.5	18.0	45.6	0.8	64.4	0.2	157.2	159.8	
Mar.-May	159.8	---	18.6	178.5	15.0	42.2	23.0	80.1	0.1	95.9	98.3	
Mkt. year	111.9	217.6	62.9	392.4	72.7	193.8	27.1	293.6	0.6	95.9	98.3	
1989/90:												
June-Aug.	98.3	373.6	17.0	488.9	26.6	88.7	0.0	115.3	0.2	372.0	373.3	
Sept.-Nov.	373.3	---	17.5	390.8	23.3	77.1	2.7	103.2	0.3	286.2	287.4	
Dec.-Feb.	287.4	---	15.7	303.1	22.6	64.9	0.7	88.2	0.2	213.6	214.7	
Mar.-May	214.7	---	16.3	231.0	19.1	34.8	20.0	73.9	0.2	156.2	156.9	
Mkt. year	98.3	373.6	66.4	538.3	91.6	265.6	23.4	380.6	0.8	156.2	156.9	
1990/91:												
June-Aug.	156.9	357.5	17.5	532.0	28.7	151.4	0.0	180.1	0.2	351.1	351.7	
Sept.-Nov.	351.7	---	11.7	363.4	24.7	42.1	2.2	69.1	0.2	293.5	294.1	
Dec.-Feb.	294.1	---	18.2	312.3	24.6	57.9	0.5	83.0	0.1	228.8	229.3	
Mar.-May	229.3	---	16.0	245.2	22.9	34.6	16.4	73.9	0.1	170.9	171.2	
Mkt. year	156.9	357.5	63.4	577.8	100.9	286.0	19.1	406.0	0.6	170.9	171.2	
1991/92:												
June-Aug.	171.2	243.5	21.7	436.4	30.5	121.7	0.0	152.2	0.1	283.8	284.1	
Sept.-Nov.	284.1	---	17.3	301.4	26.5	28.0	2.1	56.6	0.2	244.3	244.6	
Dec.-Feb.	244.6	---	17.6	262.3	26.0	60.7	0.5	87.2	0.3	174.9	174.9	
Mar.-May	174.9	---	18.1	193.0	24.3	24.4	15.2	63.9	1.4	127.5	127.7	
Mkt. year	171.2	243.5	74.8	489.4	107.3	234.8	17.7	359.8	1.9	127.5	127.7	
1992/93:												
June-Aug.	127.7	294.6	15.1	437.5	30.5	111.3	0.0	141.8	1.0	294.5	294.6	
Sept.-Nov.	294.6	---	11.9	306.5	26.5	33.4	2.1	62.0	2.1	242.4	242.5	
Dec.-Feb.	242.5	---	10.7	253.2	26.0	50.6	0.5	77.1	1.4	174.8	174.8	
Mar.-May	174.8	---	12.3	187.0	-----	34.7	-----	74.1	1.6	111.3	111.3	
Mkt. year	127.7	294.6	50.0	472.3	-----	230.0	-----	355.0	6.0	111.3	111.3	
1993/94:												
Mkt. year 2/	111.3	245.0	65.0	421.3	-----	185.0	-----	310.0	5.0	315.0	106.3	

--- Not applicable.

1/ Preliminary. 2/ Projected.

Appendix table 11--Average prices received by farmers, United States, by month, and loan rate, 1984-92 1/

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 2/	May	June	July	Aug.	Average 3/	Loan rate
\$ /bu.														
Corn:														
1984	2.90	2.65	2.55	2.56	2.64	2.62	2.67	2.70	2.68	2.64	2.60	2.44	2.63	2.55
1985	2.29	2.11	2.21	2.29	2.33	2.32	2.29	2.30	2.39	2.32	2.00	1.73	2.23	2.55
1986	1.45	1.40	1.47	1.50	1.48	1.42	1.47	1.52	1.66	1.69	1.60	1.47	1.50	1.92
1987	1.49	1.55	1.61	1.72	1.77	1.83	1.86	1.88	1.94	2.41	2.72	2.65	1.94	1.82
1988	2.60	2.58	2.51	2.53	2.60	2.59	2.60	2.56	2.58	2.52	2.47	2.27	2.54	1.77
1989	2.29	2.22	2.24	2.27	2.31	2.32	2.37	2.51	2.62	2.63	2.62	2.51	2.36	1.65
1990	2.32	2.19	2.16	2.22	2.27	2.32	2.39	2.42	2.38	2.31	2.27	2.33	2.28	1.57
1991	2.33	2.31	2.29	2.33	2.40	2.46	2.49	2.48	2.49	2.47	2.33	2.15	2.37	1.63
1992	2.16	2.05	1.98	1.97	2.03	2.00	2.10	2.17					2.05	1.72
\$ /cwt														
Sorghum:														
1984	4.24	4.05	4.05	4.15	4.16	4.10	4.24	4.46	4.54	4.52	4.04	3.74	4.15	4.32
1985	3.27	3.30	3.47	3.76	3.69	3.55	3.67	3.80	3.99	3.43	3.06	2.66	3.45	4.32
1986	2.36	2.34	2.39	2.41	2.37	2.36	2.44	2.58	2.69	2.79	2.66	2.52	2.45	3.25
1987	2.43	2.48	2.69	2.72	2.75	2.88	2.92	2.94	2.90	4.13	4.56	4.41	3.04	3.11
1988	4.26	4.16	3.99	4.07	4.09	4.05	4.04	4.21	4.03	3.90	4.00	3.81	4.05	3.00
1989	3.80	3.61	3.68	3.54	3.58	3.53	3.69	3.89	4.07	4.29	4.44	4.14	3.75	2.80
1990	3.96	3.55	3.57	3.67	3.72	3.88	3.93	4.05	4.11	3.89	3.95	4.01	3.79	2.66
1991	4.10	3.93	3.94	3.99	4.07	4.19	4.31	4.28	4.31	4.22	3.82	3.77	4.01	2.75
1992	3.71	3.23	3.21	3.27	3.38	3.32	3.38	3.45					3.30	2.91
Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 2/	May	Average 3/	Loan rate
\$ /bu.														
Oats:														
1984	1.80	1.68	1.62	1.60	1.69	1.64	1.72	1.74	1.69	1.68	1.68	1.60	1.67	1.31
1985	1.59	1.31	1.16	1.10	1.08	1.17	1.20	1.18	1.16	1.14	1.13	1.21	1.23	1.31
1986	1.10	0.90	0.86	0.99	1.10	1.32	1.44	1.46	1.47	1.45	1.50	1.57	1.21	0.99
1987	1.52	1.29	1.40	1.49	1.60	1.62	1.76	1.79	1.84	1.78	1.82	1.84	1.56	0.94
1988	2.63	2.86	2.54	2.57	2.56	2.41	2.47	2.52	2.46	2.41	2.24	2.13	2.61	0.90
1989	1.82	1.53	1.47	1.38	1.47	1.48	1.53	1.47	1.43	1.39	1.44	1.45	1.49	0.85
1990	1.33	1.15	1.06	1.09	1.14	1.16	1.17	1.13	1.13	1.16	1.16	1.16	1.14	0.81
1991	1.08	1.08	1.09	1.12	1.21	1.25	1.25	1.31	1.44	1.44	1.46	1.43	1.21	0.83
1992	1.38	1.32	1.23	1.28	1.31	1.35	1.36	1.41	1.42	1.42	1.42		1.30	0.87
All barley:														
1984	2.61	2.54	2.26	2.25	2.29	2.25	2.19	2.24	2.21	2.18	2.16	2.22	2.29	2.08
1985	2.14	2.08	1.98	1.88	1.96	2.05	2.07	2.05	1.95	1.88	1.85	1.73	1.98	2.08
1986	1.57	1.67	1.51	1.45	1.58	1.69	1.62	1.60	1.63	1.69	1.69	1.76	1.61	1.56
1987	1.74	1.82	2.00	1.87	1.72	1.88	1.83	1.78	1.72	1.65	1.74	1.77	1.81	1.49
1988	2.45	2.97	2.96	2.94	2.86	2.96	2.73	2.74	2.67	2.74	2.73	2.64	2.80	1.44
1989	2.34	2.16	2.70	2.47	2.41	2.47	2.47	2.33	2.33	2.19	2.22	2.36	2.42	1.34
1990	2.29	2.16	2.13	2.13	2.04	2.16	2.13	2.14	2.13	2.15	2.10	2.05	2.14	1.28
1991	1.90	1.73	2.06	2.06	2.10	2.20	2.24	2.21	2.15	2.12	2.14	2.22	2.10	1.32
1992	2.09	2.26	2.16	1.84	1.92	2.05	1.95	2.05	1.97	2.00	1.95		2.00	1.40
Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 2/	May		
\$ /bu.														
Feed barley:														
1984	2.72	2.60	2.10	2.13	2.19	2.19	2.20	2.20	2.22	2.27	2.19		2.16	2.30
1985	2.26	2.05	1.75	1.74	1.85	1.90	2.03	2.03	2.00	1.90	1.83		1.85	1.81
1986	1.61	1.44	1.21	1.33	1.49	1.62	1.59	1.56	1.56	1.61	1.69		1.71	1.84
1987	1.79	1.67	1.54	1.57	1.66	1.68	1.63	1.65	1.64	1.64	1.59		1.73	1.76
1988	2.07	2.34	2.37	2.39	2.34	2.30	2.27	2.28	2.29	2.29	2.35		2.32	2.27
1989	2.18	1.96	2.06	1.98	1.97	2.08	2.10	2.02	2.01	1.99	1.99		2.08	2.28
1990	2.26	2.04	1.77	1.85	1.91	1.95	1.89	2.01	1.93	1.93	1.95		1.99	2.00
1991	1.90	1.63	1.63	1.84	1.90	1.96	2.06	2.01	2.05	1.99	1.99		2.00	2.02
1992	2.06	1.99	1.73	1.72	1.79	1.79	1.77	1.85	1.86	1.83	1.82			
Malting barley:														
1984	2.52	2.48	2.50	2.52	2.52	2.39	2.18	2.29	2.11	2.11	2.17		2.17	2.10
1985	2.02	2.13	2.49	2.33	2.24	2.32	2.19	2.13	1.99	1.93	1.93		1.85	1.66
1986	1.52	2.07	2.23	1.85	1.83	1.78	1.65	1.70	1.69	1.69	1.69		1.65	1.66
1987	1.68	2.04	2.55	2.39	1.88	2.07	2.01	2.15	1.80	1.80	1.69		1.75	1.81
1988	2.80	3.26	3.38	3.47	3.41	3.34	3.27	3.32	3.22	3.22	3.22		3.16	3.04
1989	2.62	2.68	3.04	2.87	2.89	2.91	2.88	2.73	2.61	2.45	2.51		2.51	2.53
1990	2.35	2.37	2.47	2.42	2.29	2.34	2.44	2.23	2.33	2.40	2.40		2.26	2.10
1991	1.89	2.02	2.76	2.61	2.66	2.54	2.52	2.51	2.51	2.31	2.40		2.40	2.19
1992	2.15	2.51	2.60	2.11	2.13	2.26	2.12	2.28	2.13	2.17	2.11			

1/ Prices do not include an allowance for loans outstanding and government purchases. 2/ April 1993 data are preliminary. 3/ U.S. season-average prices based on monthly prices weighted by monthly marketings.

Source: Agricultural Prices, Agricultural Statistics Board, USDA.

Appendix table 12--Cash prices at principal markets, 1986-92

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
\$/bu.													
Corn, no. 2 yellow, Central Illinois:													
1986	1.34	1.34	1.55	1.52	1.44	1.38	1.46	1.56	1.75	1.74	1.60	1.46	1.51
1987	1.50	1.64	1.74	1.78	1.84	1.90	1.92	1.92	1.97	2.66	2.85	2.70	2.03
1988	2.68	2.70	2.54	2.58	2.62	2.60	2.64	2.58	2.64	2.53	2.44	2.30	2.57
1989	2.35	2.25	2.29	2.29	2.29	2.34	2.44	2.64	2.73	2.70	2.68	2.54	2.46
1990	2.25	2.18	2.20	2.27	2.31	2.36	2.45	2.50	2.41	2.34	2.34	2.45	2.34
1991	2.39	2.41	2.41	2.42	2.49	2.58	2.64	2.50	2.51	2.51	2.31	2.17	2.45
1992	2.13	1.97	1.99	2.05	2.07	2.06	2.16	2.23					
Corn, no. 2 yellow, Gulf Ports:													
1986	1.68	1.66	1.83	1.81	1.73	1.70	1.83	1.89	2.06	2.06	1.95	1.81	1.83
1987	1.86	1.99	2.08	2.11	2.20	2.23	2.29	2.28	2.29	3.05	3.22	3.02	2.39
1988	3.08	3.07	2.89	2.99	3.01	2.99	3.02	2.93	2.99	2.87	2.73	2.57	2.93
1989	2.60	2.40	2.75	2.75	2.69	2.70	2.72	3.01	3.08	3.05	2.92	2.79	2.79
1990	2.59	2.55	2.54	2.60	2.68	2.70	2.77	2.80	2.69	2.65	2.67	2.79	2.67
1991	2.76	2.76	2.72	2.71	2.70	2.89	2.96	2.77	2.77	2.80	2.61	2.48	2.74
1992	2.50	2.40	2.42	2.39	2.39	2.40	2.48	2.55					
Corn, no. 2 yellow, St. Louis:													
1986	1.47	1.46	1.68	1.69	1.61	1.57	1.65	1.74	1.93	1.92	1.79	1.65	1.68
1987	1.65	1.78	1.91	1.97	2.05	2.07	2.09	2.10	2.13	2.77	2.96	2.81	2.19
1988	2.82	2.82	2.70	2.76	2.81	2.79	2.82	2.76	2.83	2.58	2.57	2.38	2.72
1989	2.38	2.39	2.48	2.44	2.45	2.48	2.57	2.77	2.86	2.85	2.75	2.59	2.58
1990	2.37	2.32	2.65	2.41	2.46	2.50	2.58	2.61	2.52	2.47	2.45	2.54	2.49
1991	2.44	2.46	2.50	2.53	2.51	2.73	2.78	2.59	2.63	2.61	2.32	2.32	2.53
1992	2.23	2.01	2.16	2.20	2.20	2.23	2.28	2.36					
\$/cwt													
Sorghum, no. 2 yellow, Gulf Ports: 1/													
1986	2.95	3.15	3.26	3.15	3.05	3.09	3.35	3.30	3.51	3.50	3.30	3.04	3.22
1987	3.13	3.35	3.55	3.50	3.65	3.80	3.86	3.70	3.73	5.00	5.33	4.93	3.96
1988	4.99	4.91	4.64	4.93	4.99	4.99	5.02	4.89	5.05	4.75	4.02	4.53	4.81
1989	4.67	4.61	4.69	4.70	4.62	4.59	4.70	4.97	5.04	4.87	4.95	4.73	4.76
1990	4.52	4.43	4.43	4.60	4.76	4.82	4.97	4.94	4.64	4.45	4.54	4.72	4.65
1991	4.81	4.86	4.79	4.90	5.08	5.30	5.39	5.00	4.89	4.72	4.27	4.26	4.86
1992	4.26	4.11	4.22	4.33	4.33	4.29	4.32	4.30					
Sorghum, no. 2 yellow, Kansas City:													
1986	2.47	2.60	2.70	2.62	2.50	2.57	2.80	2.85	3.10	3.20	2.80	2.55	2.73
1987	2.64	2.75	2.90	2.95	3.05	3.24	3.27	3.16	3.21	4.58	4.79	4.28	3.40
1988	4.27	4.17	4.00	4.23	4.24	4.26	4.32	4.17	4.29	4.15	3.96	3.92	4.17
1989	4.73	3.91	4.00	3.98	3.91	3.84	4.01	4.32	4.47	4.54	4.48	4.27	4.21
1990	3.89	3.79	3.85	3.97	4.12	4.21	4.35	4.34	4.13	4.02	4.05	4.22	4.08
1991	4.24	4.30	4.27	4.35	4.44	4.62	4.78	4.41	4.54	4.51	4.05	3.77	4.36
1992	3.76	3.60	3.61	3.70	3.70	3.66	3.70	3.72					
Sorghum, no. 2 yellow, Texas High Plains: 2/													
1986	3.35	3.24	2.97	3.06	2.94	2.89	3.06	3.32	3.56	3.60	3.58	3.30	3.24
1987	3.19	3.27	3.27	3.39	3.40	3.53	3.56	3.54	3.55	4.84	5.25	4.96	3.81
1988	4.98	4.95	4.62	4.63	4.75	4.69	4.72	4.63	4.50	4.59	4.46	4.44	4.66
1989	4.39	4.13	4.06	4.03	4.04	4.02	4.10	4.38	4.96	4.94	4.82	4.63	4.38
1990	4.27	4.17	4.28	4.49	4.49	4.57	4.69	4.66	4.66	4.48	4.39	4.57	4.48
1991	4.52	4.56	4.57	4.61	4.76	4.92	5.04	4.93	5.01	5.03	4.85	4.54	4.78
1992	4.14	3.68	3.72	3.86	3.91	3.86	4.04	4.14					
Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
\$/bu.													
Barley, no. 3 or better malting, 65% or better plump, Minneapolis:													
1986	1.84	1.75	1.61	1.76	1.93	2.02	1.88	1.81	1.92	2.01	2.05	2.12	1.89
1987	2.07	1.93	1.73	1.98	2.08	2.05	2.01	2.02	2.15	2.08	2.11	2.24	2.04
1988	3.61	3.87	4.25	4.40	4.39	4.14	3.82	4.14	4.19	4.33	4.29	3.84	4.11
1989	3.02	3.33	3.57	3.43	3.48	3.18	3.19	3.20	3.02	3.83	2.97	3.17	3.28
1990	2.92	2.35	2.35	2.32	2.30	2.40	2.31	2.33	2.38	2.46	2.48	2.41	2.42
1991	2.26	2.14	2.14	2.21	2.38	2.50	2.54	2.51	2.51	2.50	2.50	NO	2.38
1992	2.58	2.59	2.19	2.30	2.39	2.35	2.36	2.36	2.32	2.33	2.34		
Barley, no. 2 feed, Minneapolis: 3/, 4/													
1986	1.23	1.16	1.13	1.27	1.50	1.63	1.23	NO	NO	1.64	1.76	1.86	1.44
1987	1.73	1.59	1.60	1.76	1.78	1.82	1.74	1.72	1.77	1.88	1.94	1.98	1.78
1988	2.41	2.38	2.08	2.24	2.32	2.27	2.14	2.24	2.33	2.49	2.52	2.41	2.32
1989	2.12	2.11	2.17	2.13	2.16	2.15	2.23	2.28	2.20	2.27	2.27	2.33	2.20
1990	2.39	2.17	1.99	2.01	2.11	2.16	2.07	2.09	2.15	2.14	2.12	2.13	2.13
1991	2.02	1.89	1.92	2.08	2.18	2.23	2.18	2.20	2.28	2.30	2.35	2.38	2.17
1992	2.30	2.15	2.03	2.12	2.11	2.08	2.06	2.06	2.08	2.10	2.12		
Oats, no. 2 heavy white, Minneapolis:													
1986	1.18	1.05	1.12	1.29	1.39	1.72	1.66	1.64	1.56	1.46	1.59	1.83	1.46
1987	1.64	1.61	1.77	1.85	1.97	2.05	2.02	2.10	2.06	1.93	1.94	2.12	1.92
1988	3.26	3.25	3.09	3.07	2.99	2.71	2.74	2.87	2.59	2.49	2.30	2.22	2.80
1989	1.97	1.72	1.59	1.58	1.61	1.68	1.70	1.56	1.48	1.57	1.63	1.68	1.65
1990	1.52	1.37	1.25	1.23	1.29	1.30	1.24	1.22	1.18	1.27	1.32	1.36	1.30
1991	1.25	1.33	1.38	1.35	1.41	1.42	1.49	1.50	1.68	1.66	1.57	1.59	1.47
1992	1.55	1.49	1.45	1.58	1.52	1.59	1.63	1.66	1.63	1.63	1.66		

NO = No quotes.

1/ Rail delivered to Texas Gulf. 2/ Reporting point changed from Texas High Plains to South Panhandle starting January 1991. 3/ Prior to June 1977 reported as barley, no. 3 or better. 4/ Reporting point changed from Minneapolis #2 feed to Duluth #2 feed beginning March 1987.

Source: Grain and Feed Market News, Agricultural Marketing Service, USDA.

Appendix table 13--Feed-price ratios for livestock, poultry, and milk, by month, 1983-92

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 1/	May	June	July	Aug.	Average
Hog/corn, U.S. basis 2/:													
1983	13.30	12.80	11.80	14.00	15.40	14.60	14.30	14.30	14.10	14.60	15.80	16.20	14.27
1984	16.00	16.50	18.40	19.00	18.20	18.40	16.30	15.30	15.40	16.90	17.60	17.40	17.12
1985	17.30	20.40	19.50	19.80	19.00	18.40	17.60	17.30	19.20	22.70	29.50	35.90	21.38
1986	40.20	37.90	35.90	33.70	31.90	33.90	32.20	33.40	32.80	35.00	37.30	39.90	35.34
1987	36.40	31.50	25.20	23.40	24.30	25.00	22.70	22.30	23.90	19.50	16.20	16.90	23.94
1988	15.70	15.00	14.40	15.70	15.70	15.60	15.10	14.40	16.10	17.90	18.60	20.10	16.19
1989	19.00	21.00	20.10	21.20	20.50	20.80	21.60	21.40	23.40	22.90	23.20	23.30	23.30
1990	23.30	23.30	25.90	21.50	22.00	22.50	21.50	21.00	22.70	23.70	23.90	22.00	22.78
1991	19.90	18.90	16.60	16.60	15.20	16.30	15.70	16.50	18.20	18.80	18.90	18.80	17.53
1992	19.50	20.50	20.70	21.10	20.40	22.10	22.30	20.90					
Beef-steer/corn, Omaha 3/:													
1983	17.80	18.40	18.30	19.80	21.60	22.10	21.10	20.40	19.70	19.10	20.40	20.70	19.95
1984	21.30	22.40	24.60	25.60	24.80	24.10	22.20	21.50	21.50	21.00	20.40	21.70	22.59
1985	21.80	25.70	27.80	26.70	25.60	24.40	24.00	22.90	23.00	22.30	28.90	36.70	25.82
1986	42.10	42.70	39.70	38.80	40.80	43.90	41.90	42.20	40.20	38.90	41.40	43.90	41.38
1987	42.10	41.40	38.40	36.70	36.40	37.40	38.20	39.40	38.60	29.50	24.40	26.10	35.72
1988	26.40	26.40	28.40	27.90	28.10	28.70	29.40	30.20	29.30	29.10	29.60	32.00	28.79
1989	30.80	31.10	32.20	32.80	34.20	34.00	32.60	31.10	29.30	27.90	28.50	30.90	31.28
1990	34.50	36.50	37.30	36.50	35.30	34.30	34.00	32.80	32.70	32.00	31.30	28.50	33.81
1991	28.80	29.90	30.50	29.70	29.90	31.00	30.40	31.60	30.60	29.40	32.20	34.70	30.73
1992	35.10	37.40	38.00	38.80	39.60	40.00	38.70	37.60					
Milk/feed, U.S. basis 4/:													
1983	1.36	1.39	1.36	1.34	1.33	1.33	1.34	1.32	1.32	1.32	1.35	1.40	1.35
1984	1.48	1.56	1.62	1.59	1.57	1.57	1.55	1.51	1.47	1.45	1.44	1.47	1.52
1985	1.51	1.56	1.55	1.53	1.48	1.50	1.48	1.48	1.46	1.45	1.51	1.55	1.51
1986	1.61	1.75	1.77	1.77	1.73	1.69	1.63	1.61	1.57	1.57	1.56	1.58	1.65
1987	1.64	1.65	1.65	1.63	1.51	1.47	1.43	1.40	1.37	1.36	1.15	1.19	1.45
1988	1.26	1.32	1.36	1.38	1.38	1.35	1.30	1.29	1.28	1.29	1.37	1.43	1.33
1989	1.52	1.63	1.71	1.76	1.67	1.56	1.49	1.48	1.49	1.52	1.55	1.58	1.58
1990	1.54	1.45	1.40	1.29	1.31	1.28	1.27	1.27	1.27	1.28	1.37	1.43	1.35
1991	1.49	1.53	1.58	1.57	1.51	1.44	1.40	1.41	1.43	1.47	1.51	1.52	1.49
1992	1.52	1.51	1.48	1.45	1.38	1.36	1.35	1.39					
Egg/feed, U.S. basis 5/:													
1983	6.00	6.20	6.90	7.70	8.80	8.50	7.40	8.50	6.50	5.80	5.80	5.80	6.99
1984	5.90	5.70	6.50	6.30	5.50	5.60	6.30	5.70	5.50	5.90	5.90	6.50	5.94
1985	7.10	7.30	7.50	7.40	7.20	6.90	7.60	6.40	6.40	5.70	6.90	7.30	6.98
1986	7.30	7.00	8.00	7.80	7.30	7.10	6.60	6.60	5.90	6.00	5.70	5.60	6.74
1987	6.50	6.00	6.40	5.70	5.50	5.30	5.60	5.20	5.00	5.30	4.90	4.90	5.53
1988	5.40	5.30	5.40	5.40	5.90	5.80	7.50	6.20	5.90	6.00	6.10	6.80	5.98
1989	6.80	7.10	7.90	8.30	8.40	7.10	8.00	7.30	6.20	6.40	5.40	6.40	7.11
1990	6.70	7.30	7.30	7.70	7.90	6.90	7.80	6.80	6.10	6.10	6.80	6.70	7.01
1991	6.50	6.20	6.30	7.20	5.80	5.40	5.40	5.50	5.20	5.30	5.20	5.30	5.78
1992	5.90	5.80	6.60	6.60	6.40	6.20	7.10	6.90					
Broiler/feed, U.S. basis 6/:													
1983	2.70	2.50	2.80	2.90	3.10	3.10	3.10	2.70	2.70	2.70	3.00	2.70	2.83
1984	2.80	2.60	2.80	2.70	2.90	2.90	2.80	2.80	3.10	3.20	3.10	3.10	2.90
1985	3.20	3.10	3.50	3.20	3.20	3.10	3.10	3.10	3.40	3.80	4.50	4.60	3.48
1986	3.80	4.40	3.90	3.40	3.60	3.50	3.30	3.20	3.30	3.00	2.90	3.30	3.47
1987	2.90	2.60	2.70	2.50	2.70	2.70	2.80	3.10	3.70	4.10	3.40	3.40	3.05
1988	3.20	2.80	2.70	2.80	2.80	2.80	3.10	3.30	3.70	3.50	3.30	3.00	3.08
1989	3.10	2.70	2.60	2.50	2.70	3.00	3.20	3.00	3.20	3.10	3.30	3.00	2.95
1990	3.10	2.70	2.70	2.70	2.90	2.90	2.90	2.90	3.00	3.00	3.20	3.20	2.93
1991	3.20	3.00	2.80	2.80	2.90	2.90	2.90	2.80	3.00	3.00	3.20	3.30	2.98
1992	3.00	3.20	3.30	3.10	3.10	3.10	3.10	3.20					
Turkey/feed, U.S. basis 7/:													
1983	3.00	3.00	3.10	3.50	3.60	3.20	3.30	3.30	3.30	3.30	3.60	3.80	3.33
1984	3.90	4.40	5.00	5.50	4.70	3.80	3.70	3.70	3.70	3.90	4.20	4.50	4.25
1985	5.00	5.50	5.50	5.50	3.40	3.40	3.50	3.50	3.80	4.30	4.50	4.60	4.38
1986	4.70	4.90	4.80	4.00	3.30	3.40	3.40	3.50	3.40	3.30	3.10	3.00	3.73
1987	2.90	2.80	3.10	3.60	2.90	2.60	2.50	2.70	2.80	3.00	3.00	3.10	2.92
1988	3.40	3.60	3.60	2.90	2.70	2.90	3.10	3.30	3.50	3.50	3.30	3.30	3.26
1989	3.00	3.20	3.40	3.30	3.00	2.80	3.10	3.10	3.20	3.20	3.30	3.30	3.16
1990	3.40	3.60	3.60	3.10	2.90	3.00	3.10	3.20	3.20	3.30	3.40	3.50	3.28
1991	3.50	3.10	3.10	3.20	3.10	3.00	3.10	3.10	3.10	3.10	3.10	3.10	3.13
1992	3.00	3.20	3.20	3.20	3.00	2.90	3.10	3.00					

1/ April 1993 data are preliminary. 2/ Bushels of corn equal in value to 100 pounds of hog, live weight. 3/ Based on price of choice beef-steers, 900-1100 pounds. 4/ Pounds of 16-percent mixed dairy feed equal in value to 1 pound whole milk. 5/ Pounds of laying feed equal in value to 1 dozen eggs. 6/ Pounds of broiler grower feed equal in value to 1 pound broiler, live weight. 7/ Pounds of turkey grower feed equal in value to 1 pound of turkey, live weight.

Sources: Agricultural Prices, Agricultural Statistics Board, USDA;
Livestock, Meat & Wool Market News, Agricultural Marketing Service, USDA.

Appendix table 14--Price trends, selected feeds, and corn products

Item	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.-Aug. Average 1/
----- \$/ton -----													
Wholesale, mostly bulk 2/:													
Soybean meal, 44%	176.99	172.50	163.00	164.80	155.70	163.60	165.75	171.50	171.00	171.10	169.70	177.60	168.60
Soybean meal, 44%	191.90	183.00	178.00	170.70	172.70	174.30	174.20	171.80	182.75	181.70	173.90	174.40	177.70
Soybean meal, 44%	175.10	168.60	170.90	176.40	175.60	167.50	172.40	175.60					
Soybean meal, high	190.00	185.40	174.25	175.90	167.00	174.50	177.60	182.50	182.10	183.25	181.00	188.75	180.19
protein, Decatur:	204.25	196.30	190.25	183.10	184.00	185.40	185.90	187.20	195.25	203.90	186.25	186.00	190.65
	187.00	180.60	181.90	188.75	188.75	179.90	183.60	187.40					
Cottonseed meal, 41%	178.75	163.00	147.50	141.25	125.00	118.10	125.00	125.50	118.10	117.20	127.50	130.90	134.57
solvent, Memphis:	133.10	131.00	144.00	162.00	156.25	143.10	142.25	121.25	127.50	132.50	133.75	146.90	138.00
	163.00	154.40	157.50	174.50	164.40	149.40	153.50	149.00					
Linseed meal, 34%	116.25	133.00	143.75	133.50	131.00	131.25	120.00	121.00	126.25	134.25	133.00	131.25	129.54
solvent, Minneapolis:	116.25	128.00	137.75	127.80	122.00	124.00	115.00	117.50	120.00	125.00	123.50	126.25	123.25
	131.00	141.25	152.50	137.40	136.70	142.50	135.40	125.50					
Meat and bone meal,	200.50	209.20	211.25	209.40	198.50	191.25	205.60	205.00	194.40	195.75	205.10	224.40	204.20
Kansas City 3/:	235.50	227.00	219.40	208.50	208.90	205.90	215.70	202.25	206.50	206.20	197.10	204.40	211.20
	217.20	216.60	208.60	214.50	225.00	214.25	215.80	221.90					
Fishmeal, 67% protein	333.30	364.00	363.13	316.90	NQ	356.25	351.90	329.50	325.00	316.25	324.50	358.75	339.95
East Coast:	385.00	403.50	406.90	321.50	394.40	390.60	NQ	348.00	364.20	365.80	345.00	300.70	365.96
	404.00	412.50	412.50	410.00	NQ	NQ	NQ	NQ					
Corn gluten feed,	83.50	92.60	94.25	98.40	114.20	103.75	114.25	101.70	95.90	94.25	92.00	90.50	97.94
Illinois pts.:	95.60	104.60	106.10	107.00	107.40	108.50	101.50	95.50	95.40	94.40	99.40	102.50	101.49
	107.30	108.50	106.10	115.20	108.10	107.00	99.00	80.50					
Corn gluten meal, 60%	229.40	232.00	231.90	240.60	247.00	239.40	247.50	236.70	226.90	230.00	236.20	254.60	237.68
protein, IL pts.:	269.40	292.50	296.25	287.50	267.50	275.60	272.00	247.50	246.25	248.50	243.75	242.75	265.79
	265.00	269.40	266.90	287.00	283.10	294.40	295.50	284.40					
Brewers' dried grains	93.10	101.00	115.00	116.90	115.00	115.00	82.50	80.50	82.25	75.60	63.50	81.13	93.46
grains, Milwaukee:	99.00	107.50	113.10	121.00	121.90	122.50	108.50	87.75	90.00	90.00	94.40	98.40	104.59
	103.60	110.25	110.50	111.00	111.00	113.00	108.90	99.60					
Dist. dried grains,	122.25	124.20	129.50	133.50	134.80	136.25	138.00	134.00	128.00	123.00	90.70	NQ	126.75
Lawrenceburg, IN.:	118.00	118.00	120.00	126.60	128.00	127.60	124.10	121.00	117.25	117.20	126.00	NQ	122.34
	130.00	110.25	134.00	135.00	135.00	135.00	131.00	123.00					
Feather meal,	186.25	202.00	223.75	227.00	207.50	167.50	204.50	206.00	189.40	170.75	173.20	178.80	194.72
Arkansas pts.:	205.50	198.80	205.00	227.50	221.40	209.75	226.00	198.10	191.25	195.20	192.50	201.75	208.81
	223.80	240.00	261.25	276.00	271.25	265.00	235.50	246.75					
Wheat bran,	73.60	79.30	78.75	70.60	79.10	69.40	70.40	56.30	51.90	52.75	55.70	63.50	66.78
Kansas City:	61.60	72.90	84.40	81.80	76.90	78.40	77.40	60.10	59.10	62.10	60.25	56.50	69.29
	68.30	79.60	86.40	92.30	81.00	62.50	69.70	59.60					
Wheat middlings,	73.60	79.00	78.75	70.60	79.10	69.40	70.40	56.30	51.90	52.75	55.70	63.50	66.75
Kansas City:	61.60	72.90	84.40	81.80	76.90	78.40	77.40	60.10	59.10	62.10	60.25	56.50	69.29
	68.30	79.60	86.40	92.30	81.00	66.25	69.70	59.60					
Rice bran, f.o.b.	64.40	63.10	56.90	66.50	75.20	57.75	62.60	66.40	54.65	59.10	60.10	53.40	61.68
mills, Arkansas:	49.90	46.60	59.50	77.50	79.50	60.50	52.60	52.60	50.10	51.90	56.75	49.20	56.93
	42.50	45.10	62.60	76.75	79.90	57.60	53.80	51.00					
Hominy feed,	90.00	85.70	85.00	84.50	85.50	83.00	82.50	82.10	68.10	73.90	77.00	79.13	81.37
Illinois pts.:	88.00	77.20	83.60	80.00	88.00	93.60	91.70	92.75	84.50	83.90	83.25	77.90	86.22
	76.40	72.50	67.10	66.90	65.60	60.00	60.80	66.90					

See footnotes at end of table.

Continued--

Appendix table 14--Price trends, selected feeds, and corn products--continued

Item	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.-Aug. Average 1/
Prices paid, U.S. basis 6/ 7/:													
Chick starter:	---	215.00	---	---	217.00	---	---	222.00	---	---	218.00	---	218.00
	---	225.00	---	---	227.00	---	---	228.00	---	---	228.00	---	227.00
	---	227.00	---	---	219.00	---	---	226.00	---	---	---	---	---
Dairy feed, 16%:													
	---	181.00	---	---	179.00	---	---	178.00	---	---	172.00	---	177.50
	---	175.00	---	---	179.00	---	---	179.00	---	---	178.00	---	178.00
	---	177.00	---	---	181.00	---	---	179.00	---	---	---	---	---
Beef cattle conc., 52-36% protein 8/:													
	---	251.00	---	---	249.00	---	---	249.00	---	---	245.00	---	248.50
	---	248.00	---	---	250.00	---	---	249.00	---	---	250.00	---	249.25
	---	254.00	---	---	261.00	---	---	261.00	---	---	---	---	---
Hog concentrate, 38-42% protein 8/:													
	---	302.00	---	---	294.00	---	---	295.00	---	---	297.00	---	297.00
	---	312.00	---	---	301.00	---	---	304.00	---	---	302.00	---	304.75
	---	303.00	---	---	311.00	---	---	305.00	---	---	---	---	---
Stock salt 8/:													
	---	3.53	---	---	3.57	---	---	3.58	---	---	3.58	---	3.57
	---	3.58	---	---	3.57	---	---	3.57	---	---	3.63	---	3.60
	---	3.65	---	---	3.51	---	---	---	---	---	---	---	---
Corn products, wholesale 9/:													
Corn meal, yellow, New York:													
	13.40	13.53	13.54	13.50	13.51	13.62	13.62	13.69	13.43	12.82	13.20	13.62	13.46
	13.40	13.46	13.32	13.36	13.42	13.75	13.75	13.75	13.56	13.79	13.48	13.25	13.51
	13.30	13.10	13.16	13.14	13.09	13.07	13.33	13.65	---	---	---	---	---
Brewers' grits, Chicago:													
	10.01	10.02	10.02	9.96	9.97	10.05	10.09	10.18	9.92	9.79	9.69	10.11	9.98
	9.90	9.95	9.81	9.85	9.91	10.07	10.06	9.85	9.90	10.13	9.82	9.59	9.90
	9.64	9.44	9.51	9.48	9.43	9.41	9.67	9.87	---	---	---	---	---
Syrup, Midwest/West:													
	12.01	10.44	10.44	10.44	10.44	10.44	11.36	12.73	12.73	12.73	12.73	11.60	11.60
	12.86	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.20	13.20
	13.23	9.13	9.13	9.03	8.88	8.88	9.01	9.65	---	---	---	---	---
Sugar, dextrose, Midwest:													
	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50
	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50
	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50
High-fructose 42% in tank cars, Midwest:													
	16.28	13.66	12.78	12.78	12.78	12.78	13.16	14.70	14.70	15.34	17.25	14.46	14.46
	17.55	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	16.61	15.23	15.23
	16.51	12.78	12.78	12.78	12.78	12.78	12.38	1.50	---	---	---	---	---
Corn starch, f.o.b. Midwest:													
	11.27	10.92	10.62	10.62	10.73	10.86	10.86	11.01	11.41	11.41	11.41	11.11	11.02
	11.56	11.35	11.05	10.50	10.38	10.62	10.92	11.22	11.22	11.22	11.32	11.02	11.03
	10.82	10.62	10.17	10.17	10.37	10.37	10.37	10.82	---	---	---	---	---

--- Not applicable.

NO - No quotes.
 1/ Preliminary.
 2/ Grain and Feed Market News, Agricultural Marketing Service, USDA, except areas which is from Feedstuffs, Miller Publishing Co., Minneapolis, Minnesota.
 3/ Reported as Central U.S. starting December 1991.
 4/ Reported as Central U.S. starting November 1991.
 5/ Reported as Central U.S. starting November 1991.
 6/ Agricultural Prices, Agricultural Statistics Board, USDA.
 7/ Prices paid data are available on a quarterly basis only.
 8/ Prices previously published in cwt. 9/ Milling and Baking News, Kansas City, Missouri, except starch which is from industry sources.

Appendix table 15--Corn, sorghum, barley, and oats exports, 1990/91 to date 1/

Year and month	-----Corn-----			Year and month	-----Barley-----		-----Oats-----	
	Grain only	Total	Sorghum		Grain only	Total	Grain only	Total
	Bushels				Bushels			
1990/91:				1990/91:				
Sept.	104,481,725	107,660,786	18,212,550	June	11,117,541	11,513,925	97,279	1,570,692
Oct.	108,167,173	111,681,827	17,699,775	July	9,710,625	10,087,024	40,786	85,603
Nov.	168,267,057	171,969,242	20,675,433	Aug.	10,034,291	10,539,588	44,988	110,494
1st Qtr.	380,915,955	391,311,855	56,587,758	1st Qtr.	30,862,457	32,140,537	183,053	1,766,789
Dec.	142,014,814	144,624,717	17,623,325	Sept.	1,988,477	3,087,548	126,284	169,650
Jan.	145,445,932	149,685,190	16,913,071	Oct.	14,051,755	14,502,068	60,283	128,768
Feb.	183,223,004	188,180,356	26,673,364	Nov.	9,145,553	9,384,739	44,644	114,072
2nd Qtr.	470,683,750	482,490,263	61,209,760	2nd Qtr.	25,185,785	26,974,355	231,211	412,490
Mar.	188,842,557	192,831,722	29,896,642	Dec.	12,191,330	13,434,072	16,328	72,335
Apr.	144,273,134	146,807,586	29,567,333	Jan.	5,306,020	5,997,147	56,218	123,360
May	120,483,221	125,189,787	16,533,105	Feb.	1,110,670	1,517,806	21,908	87,315
3rd Qtr.	453,598,912	464,829,095	75,997,080	3rd Qtr.	18,608,020	20,949,025	94,454	283,010
June	105,294,130	108,117,400	4,063,146	Mar.	2,768,592	3,627,196	23,631	2,293,212
July	163,712,172	169,497,385	14,771,928	Apr.	438,674	1,083,202	40,510	183,270
Aug.	150,394,375	153,885,735	19,554,555	May	2,764,091	4,068,414	38,168	136,809
4th Qtr.	419,400,677	431,500,520	38,389,629	4th Qtr.	5,971,357	8,778,813	102,308	2,613,291
Total	1,724,599,294	1,770,131,733	232,184,227	Total	80,627,619	88,842,730	611,026	5,075,580
1991/92:				1991/92:				
Sept.	134,767,135	137,614,861	14,959,285	June	679,758	1,335,352	58,422	121,576
Oct.	136,956,614	140,060,404	16,459,811	July	5,394,343	6,485,240	53,049	149,435
Nov.	149,537,473	152,976,219	15,121,274	Aug.	7,408,540	8,107,346	23,011	99,658
1st Qtr.	421,261,222	430,651,484	46,540,370	1st Qtr.	13,482,641	15,927,938	134,482	370,669
Dec.	127,343,966	130,025,340	30,157,833	Sept.	8,661,501	9,477,281	84,602	170,262
Jan.	100,189,249	102,917,540	35,198,141	Oct.	13,090,494	13,776,430	96,659	202,500
Feb.	134,155,436	136,462,241	42,850,982	Nov.	14,911,420	15,449,001	19,704	177,377
2nd Qtr.	361,688,651	369,405,121	108,206,956	2nd Qtr.	36,663,415	38,702,712	200,965	550,139
Mar.	124,300,247	126,979,997	34,571,072	Dec.	7,929,933	8,234,664	20,875	242,713
Apr.	142,446,226	145,122,719	45,425,727	Jan.	11,515,981	11,782,314	109,956	371,445
May	104,711,888	107,538,905	25,007,215	Feb.	5,187,016	5,698,245	48,226	202,737
3rd Qtr.	371,458,361	379,641,621	105,004,014	3rd Qtr.	24,632,930	25,715,223	179,057	816,895
June	147,780,588	150,657,616	8,305,140	Mar.	1,686,720	2,130,608	320,910	651,232
July	146,358,254	149,453,379	9,326,321	Apr.	11,396,426	12,749,187	673,168	813,441
Aug.	135,557,511	137,710,736	14,349,388	May	6,636,142	7,546,220	394,834	523,435
4th Qtr.	429,696,353	437,821,730	31,980,849	4th Qtr.	19,719,288	22,426,015	1,388,912	1,988,108
Total	1,584,104,587	1,617,519,956	291,732,189	Total	94,498,274	102,771,888	1,903,416	3,725,811
1992/93:				1992/93:				
Sept.	153,957,070	156,156,803	23,555,198	June	6,112,452	7,571,349	337,169	451,272
Oct.	139,423,233	141,952,722	19,463,829	July	5,114,631	5,669,888	319,670	437,796
Nov.	194,133,827	196,628,374	13,422,100	Aug.	7,136,040	7,769,056	376,990	658,652
1st Qtr.	487,514,130	494,737,899	56,441,127	1st Qtr.	18,363,123	21,010,293	1,033,829	1,547,720
Dec.	173,102,447	175,021,686	33,459,163	Sept.	5,269,184	5,968,023	704,032	902,051
Jan.	153,676,630	155,732,807	33,278,777	Oct.	6,811,777	7,581,022	925,252	1,127,925
Feb.	136,262,663	138,416,028	34,737,232	Nov.	9,947,530	10,406,612	429,419	621,799
2nd Qtr.	463,041,740	469,170,521	101,475,172	2nd Qtr.	22,028,491	23,955,657	2,058,703	2,651,775
Mar.	135,915,165	138,816,513	32,915,201	Dec.	8,404,065	9,162,048	292,870	455,869
Apr.				Jan.	3,686,266	4,645,437	412,402	512,386
May				Feb.	9,844,877	10,362,364	650,777	814,240
3rd Qtr.				3rd Qtr.	21,935,208	24,169,849	1,356,049	1,782,495
June				Mar.	5,658,346	7,324,734	444,645	514,950
July				Apr.				
Aug.				May				
4th Qtr.				4th Qtr.				
Total				Total				

1/ Total corn exports include grain only (white, yellow, seed, relief), dry process (cornmeal for relief, as grain, grits), and wet process (corn starch, sugar dextrose, glucose, high fructose). Sorghum includes seed and unmilled. Barley includes grain only (grain for malting purposes, other) and barley malt. Oats include grain and oatmeal (bulk and packaged).

Source: Bureau of the Census, U.S. Department of Commerce.

Appendix table 16--Corn, sorghum, barley, and oats imports, 1990/91 to date 1/

Year and month	-----Corn-----			Year and month	-----Barley-----			-----Oats-----	
	Grain only	Total	Sorghum		Grain only	Total	Grain only	Total	
	Bushels				Bushels				
1990/91:				1990/91:					
Sept.	29,118	967,853	5,551	June	603,614	691,947	6,675,422	6,766,369	
Oct.	172,220	1,396,469	0	July	309,116	547,246	5,841,249	5,908,451	
Nov.	683,773	2,131,564	60	Aug.	117,460	357,140	4,998,143	5,090,611	
1st Qtr.	885,111	4,495,886	5,611	1st Qtr.	1,030,190	1,596,333	17,514,814	17,765,432	
Dec.	90,489	1,059,442	0	Sept.	117,510	200,053	2,240,097	2,358,047	
Jan.	100,811	1,255,105	0	Oct.	293,888	485,842	4,464,410	4,636,239	
Feb.	83,751	1,095,646	0	Nov.	839,438	1,014,543	4,970,603	5,078,808	
2nd Qtr.	275,051	3,410,193	0	2nd Qtr.	1,250,836	1,700,438	11,675,110	12,073,094	
Mar.	80,937	1,201,768	60,462	Dec.	1,288,335	1,569,231	6,027,830	6,118,040	
Apr.	214,595	1,285,191	167	Jan.	1,194,977	1,306,682	2,543,485	2,642,746	
May	487,548	1,534,735	12	Feb.	1,723,635	1,836,340	9,675,744	9,822,449	
3rd Qtr.	783,080	4,021,694	60,641	3rd Qtr.	4,206,947	4,712,253	18,247,059	18,583,235	
June	155,046	1,151,719	0	Mar.	2,248,034	2,423,555	4,618,596	4,763,254	
July	423,345	1,586,421	679	Apr.	3,369,631	3,401,987	3,767,262	3,887,601	
Aug.	893,816	1,996,622	1,319	May	1,373,891	1,581,999	7,585,984	7,719,294	
4th Qtr.	1,472,207	4,734,762	1,998	4th Qtr.	6,991,556	7,407,541	15,971,842	16,370,149	
Total	3,415,449	16,662,535	68,250	Total	13,479,529	15,416,565	63,408,825	64,791,910	
1991/92:				1991/92:					
Sept.	1,100,354	2,099,166	0	June	4,575,522	4,778,394	5,759,634	5,844,622	
Oct.	2,251,767	3,433,843	0	July	1,743,996	1,919,668	7,175,340	7,240,484	
Nov.	3,128,935	3,991,138	0	Aug.	1,120,846	1,279,512	8,780,737	8,871,528	
1st Qtr.	6,481,056	9,524,147	0	1st Qtr.	7,440,364	7,977,574	21,715,711	21,956,634	
Dec.	1,420,521	2,368,422	118	Sept.	567,099	652,111	4,958,443	5,041,886	
Jan.	1,404,407	2,572,915	0	Oct.	1,232,489	1,313,834	9,129,115	9,219,462	
Feb.	1,579,933	2,826,668	0	Nov.	1,657,843	1,741,481	3,209,866	3,325,064	
2nd Qtr.	4,404,861	7,768,005	118	2nd Qtr.	3,457,431	3,707,426	17,297,424	17,586,412	
Mar.	1,962,895	3,380,386	393	Dec.	1,818,152	2,009,904	4,236,846	4,411,775	
Apr.	2,193,891	3,361,470	0	Jan.	2,349,600	2,483,012	5,997,604	6,120,696	
May	1,247,071	2,395,941	225	Feb.	2,286,473	2,460,709	7,414,705	7,525,443	
3rd Qtr.	5,403,857	9,137,797	618	3rd Qtr.	6,454,225	6,953,625	17,649,155	18,057,914	
June	1,380,817	2,692,486	4,565	Mar.	2,525,374	2,676,242	6,625,725	6,729,380	
July	1,390,021	2,499,421	1,567	Apr.	2,288,155	2,422,134	8,797,008	8,894,410	
Aug.	576,112	1,777,124	394	May	2,356,369	2,453,301	2,679,647	2,788,631	
4th Qtr.	3,346,950	6,969,031	6,526	4th Qtr.	7,169,898	7,551,677	18,102,380	18,412,421	
Total	19,636,724	33,398,980	7,262	Total	24,521,918	26,190,302	74,764,670	76,013,381	
1992/93:				1992/93:					
Sept.	221,471	1,553,822	0	June	2,159,260	2,244,926	7,323,161	7,515,000	
Oct.	296,504	1,510,619	0	July	3,279,771	3,467,803	4,075,120	4,197,542	
Nov.	739,778	1,843,315	0	Aug.	1,117,761	1,210,126	3,740,291	3,898,321	
1st Qtr.	1,257,753	4,907,756	0	1st Qtr.	6,556,792	6,922,855	15,138,572	15,610,863	
Dec.	541,980	1,818,086	0	Sept.	566,767	676,418	2,452,932	2,632,483	
Jan.	241,471	1,522,523	0	Oct.	499,308	594,740	3,920,278	4,104,556	
Feb.	255,908	1,280,493	4,650	Nov.	467,239	565,914	5,525,416	5,733,071	
2nd Qtr.	1,039,359	4,621,102	4,650	2nd Qtr.	1,533,314	1,837,072	11,898,626	12,470,110	
Mar.	629,207	2,075,358	0	Dec.	359,479	465,468	5,190,977	5,359,648	
Apr.				Jan.	611,251	750,665	2,661,061	2,875,420	
May				Feb.	476,363	647,058	2,845,670	3,107,494	
3rd Qtr.				3rd Qtr.	1,447,093	1,863,191	10,697,708	11,342,562	
June				Mar.	321,428	466,275	1,979,249	2,238,823	
July				Apr.					
Aug.				May					
4th Qtr.				4th Qtr.					
Total				Total					

1/ Corn includes grain only (yellow dent corn, other), seed, and cornmeal. Sorghum is grain only. Barley includes grain only barley for malting, other), pearl barley, milled and malting. Oats include grain (hulled or unhulled), unhulled oats fit and unfit for human consumption, and oatmeal fit for human consumption.

Source: Bureau of the Census, U.S. Department of Commerce.

Appendix table 17--Shipments of grain on the Illinois waterway and the Mississippi River (Locks 11-22), 1981/82-1992/93

Crop year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
1981/82	3.4	3.4	4.6	3.9	1.2	0.8	2.1	4.1	3.8	4.4	3.9	5.0	3.4
1982/83	4.1	3.2	4.2	3.2	2.7	2.3	3.8	3.3	3.9	4.2	4.2	4.8	3.6
1983/84	5.3	4.9	5.7	4.4	1.0	3.6	4.5	5.3	4.4	3.7	3.4	3.3	4.1
1984/85	3.1	4.6	5.5	3.1	2.0	0.9	3.1	4.1	3.1	3.2	3.4	3.0	3.3
1985/86	2.4	2.6	4.3	3.3	1.8	1.7	2.9	3.4	3.6	3.2	2.5	3.3	2.9
1986/87	3.2	3.1	5.2	2.4	1.2	1.7	3.6	3.8	4.0	3.8	2.8	3.5	3.2
1987/88	3.3	3.8	3.9	2.9	1.9	2.0	3.0	4.2	4.3	3.6	2.7	3.3	3.2
1988/89	3.3	3.3	3.9	3.5	1.7	1.5	2.6	3.5	4.3	4.1	3.9	3.4	3.3
1989/90	3.0	3.9	4.7	2.5	2.2	2.2	3.5	4.5	5.2	4.5	5.0	4.0	3.8
1990/91	3.6	3.4	4.8	2.1	1.6	2.0	3.1	4.0	3.7	3.6	4.4	3.8	3.4
1991/92	3.3	3.5	3.7	2.9	1.8	2.0	3.4	3.8	4.1	4.1	4.8	4.6	3.5
1992/93	3.2	2.6	3.3	2.9	2.0	1.7	3.0	2.5					2.7

Source: Mississippi River Barge Traffic, U.S. Army Corps of Engineers, Rock Island District.

Appendix table 18--Barge rates for grain shipments to New Orleans, Louisiana 1/

Crop year	Origin	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
Dollars/ton														
1984/85	Peoria, IL	7.77	8.07	6.71	5.79	7.34	6.87	5.73	5.08	4.33	4.76	4.83	4.63	5.99
	St Louis, MO	5.94	5.92	5.15	3.98	4.36	4.20	3.88	3.79	3.29	3.39	3.34	3.64	4.24
1985/86	Peoria, IL	5.26	7.93	6.48	9.08	7.22	5.64	4.28	4.13	3.90	3.70	3.70	6.21	5.63
	St Louis, MO	4.32	6.42	4.80	5.35	4.39	3.87	3.18	3.14	2.97	2.99	2.96	4.62	4.08
1986/87	Peoria, IL	8.37	10.54	6.64	5.16	4.95	5.23	6.96	5.88	5.44	6.16	6.15	6.46	6.50
	St Louis, MO	6.52	7.52	5.06	3.62	3.28	3.52	5.27	4.54	3.77	4.30	4.37	4.99	4.73
1987/88	Peoria, IL	8.66	9.04	7.38	5.68	7.32	6.89	8.16	7.25	6.19	9.86	9.79	7.61	7.82
	St Louis, MO	6.58	6.97	5.73	4.29	4.39	4.59	6.13	5.47	4.65	7.56	6.81	6.46	5.80
1988/89	Peoria, IL	9.80	10.32	7.88	8.81	7.32	7.26	7.08	5.85	5.34	6.13	4.92	5.13	7.15
	St Louis, MO	7.91	8.35	5.94	6.11	5.19	5.31	5.40	4.18	3.72	4.44	3.68	3.92	5.35
1989/90	Peoria, IL	5.89	10.49	10.87	12.15	9.13	7.32	6.43	7.70	6.43	5.47	4.56	5.40	7.65
	St Louis, MO	4.64	7.90	6.84	7.05	5.23	5.07	4.92	5.64	4.82	3.99	3.22	3.96	5.27
1990/91	Peoria, IL	6.33	7.38	7.16	5.97	7.46	6.45	5.09	5.28	4.85	5.62	6.65	7.98	6.35
	St Louis, MO	4.76	5.57	5.62	4.21	4.89	4.20	3.91	3.88	3.44	4.11	4.90	6.24	4.65
1991/92	Peoria, IL	10.87	10.67	6.86	6.13	5.57	6.31	6.67	5.76	5.05	5.55	5.83	5.84	6.76
	St Louis, MO	8.22	8.43	5.09	4.39	3.72	4.52	5.07	4.23	3.52	4.06	4.05	4.63	4.99
1992/93	Peoria, IL	7.85	11.33	7.67	7.26	6.13	6.49	5.92	5.69					7.29
	St Louis, MO	6.50	10.20	5.78	4.84	4.18	4.57	4.29	4.21					5.57

1/ Assumes all traffic on the Illinois River originates at Peoria.

Source: Based on rates reported by Transportation Situation, Illinois Dept. of Agriculture.

Appendix table 19--Weekly average of rail car loadings of grain and soybeans, 1980/81-1992/93

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
Carloads													
1980/81	32,127	24,114	31,450	28,106	34,396	31,108	27,657	23,490	21,291	28,014	22,162	25,152	27,506
1981/82	25,607	25,609	27,419	22,384	22,967	27,220	26,813	25,798	23,755	22,540	27,020	25,123	25,188
1982/83	20,321	29,523	25,350	21,888	24,700	26,318	26,807	21,243	20,849	21,393	27,942	27,461	24,483
1983/84	29,735	31,414	29,515	25,927	31,068	29,105	27,666	26,784	23,616	24,335	26,632	29,848	27,970
1984/85	29,162	24,482	28,587	25,441	25,310	23,688	23,340	20,164	17,715	24,724	22,662	20,218	23,791
1985/86	18,889	26,227	28,214	23,482	25,424	22,558	20,648	17,743	17,673	24,907	24,426	24,342	22,878
1986/87	27,329	33,605	29,877	24,827	23,086	26,663	27,134	25,046	26,189	32,154	32,257	30,825	28,249
1987/88	32,977	32,820	29,947	29,225	32,223	34,224	34,241	32,963	30,861	33,316	29,678	27,010	31,624
1988/89	29,014	30,628	27,140	27,120	30,324	30,583	31,436	29,181	25,943	27,253	25,095	25,990	28,392
1989/90	24,437	28,950	31,701	29,411	32,250	32,605	29,648	27,938	25,696	28,122	25,717	26,904	28,615
1990/91	23,982	27,622	26,822	24,359	26,337	28,560	28,100	24,927	20,833	24,500	25,581	27,573	25,766
1991/92	27,537	29,833	27,300	28,264	30,017	29,966	29,862	24,971	21,333	23,688	25,821	26,200	27,068
1992/93	25,797	30,787	31,497	29,667	29,642	30,707	30,065	28,049					29,526

Source: Association of American Railroads.

Appendix table 20--Rail-freight-rate index for grain, crop years 1980/81-1992/93

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
December 1984=100													
1980/81	78.3	78.8	78.8	79.2	83.1	84.1	85.0	84.8	84.8	85.7	88.0	88.5	83.3
1981/82	88.5	89.4	89.4	89.4	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	92.1
1982/83	93.0	93.0	93.0	93.0	93.9	93.9	93.9	93.9	93.9	93.9	93.9	93.9	93.6
1983/84	93.9	94.2	94.2	94.2	98.0	98.0	98.0	98.0	98.0	98.0	98.4	98.4	96.8
1984/85	98.4	100.0	100.0	100.0	100.0	100.0	99.3	99.3	98.7	97.3	96.4	96.3	98.8
1985/86	98.0	98.0	98.0	98.0	98.9	99.0	99.0	99.1	99.2	99.2	99.2	99.2	98.7
1986/87	99.2	98.5	98.5	97.8	98.3	98.3	98.8	98.6	98.5	98.6	98.6	98.5	98.5
1987/88	98.9	99.2	99.1	98.5	101.2	101.2	101.4	102.7	104.1	104.3	106.4	109.3	102.2
1988/89	109.3	108.3	108.5	108.2	109.2	109.2	108.8	108.8	108.8	108.0	108.4	108.4	108.7
1989/90	108.4	108.6	108.7	108.7	109.1	109.1	109.1	109.7	109.7	109.2	109.7	110.5	109.1
1990/91	110.6	111.3	111.3	111.3	111.0	111.0	112.5	112.0	111.2	109.9	110.8	110.8	111.1
1991/92	110.8	111.6	111.3	111.3	111.4	111.6	110.8	110.2	110.5	110.5	110.3	110.3	111.9
1992/93	110.3	113.1	113.1	114.4	113.8	113.9	114.5	114.5					113.5

Source: Bureau of Labor Statistics, U.S. Department of Labor.

Appendix table 21--Hay (all): Acreage, supply, and disappearance, 1986/87-1993/94

Item	Unit	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
Acreage harvested	Mill. acres	62.3	60.1	65.1	63.3	61.4	62.5	59.6	60.3
Yield per acre	Tons	2.49	2.45	1.94	2.30	2.39	2.45	2.50	2.45
Carryover (May 1)	Mill. tons	26.7	32.3	27.1	17.5	27.1	27.0	28.6	21.2
Production	"	155.4	147.5	126.0	145.5	146.8	153.3	149.1	147.7
Supply	"	182.1	179.8	153.1	163.0	173.9	180.3	177.7	168.8
Disappearance	"	149.9	152.7	135.6	135.9	146.9	152.0	156.6	NA
Roughage-consuming animal units (RCAU's)	Mill. units	78.3	76.3	75.5	75.5	75.5	76.4	77.0	NA
Supply per RCAU	Tons	2.33	2.36	2.03	2.16	2.30	2.36	2.32	NA
Disappearance per RCAU	"	1.91	2.00	1.80	1.80	1.94	1.98	2.03	NA

NA = Not available.

Appendix table 22--Hay: Average prices received by farmers, United States, by month, 1983/84-1992/93 1/

Year	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 2/	Average 3/
\$/ton													
Alfalfa:													
1983/84	83.80	78.30	77.40	77.40	79.10	82.40	80.10	81.70	82.00	85.10	84.40	84.30	81.33
1984/85	87.10	80.10	75.60	72.80	73.90	76.70	74.30	77.50	76.20	76.40	75.80	76.70	76.93
1985/86	85.50	74.90	72.50	68.10	70.70	70.50	67.70	69.10	70.20	71.30	72.00	69.80	71.86
1986/87	69.50	64.10	61.40	60.10	58.80	59.90	57.90	60.70	58.80	61.10	62.80	67.90	61.92
1987/88	76.30	66.90	65.10	66.30	67.60	67.70	63.70	67.40	66.50	69.60	72.50	76.90	69.31
1988/89	84.50	81.90	87.90	86.10	87.30	90.30	92.20	94.40	96.70	99.40	105.00	107.00	93.83
1989/90	105.00	96.50	89.90	87.50	91.20	89.80	91.30	92.50	93.30	95.20	96.70	103.00	93.80
1990/91	104.00	92.60	89.40	86.30	89.20	90.70	85.70	84.60	84.20	84.80	85.90	90.10	86.60
1991/92	86.50	80.10	75.40	74.00	72.30	71.20	71.00	72.00	72.30	74.50	72.90	73.70	74.60
1992/93	80.00	80.00	75.80	72.80	73.80	74.70	78.30	79.10	80.80	83.70	84.30	88.20	78.40
Other hay:													
1983/84	58.90	56.10	54.30	52.90	57.80	59.50	62.10	64.30	63.30	63.80	64.90	66.50	60.37
1984/85	64.90	63.40	61.80	60.90	62.40	62.00	62.60	64.80	64.80	64.70	61.70	58.40	62.70
1985/86	58.70	54.00	57.00	58.40	58.60	58.20	55.30	56.00	56.10	56.00	54.80	54.90	56.50
1986/87	54.00	50.90	50.00	51.00	52.70	50.00	49.70	49.40	48.10	50.90	48.30	48.20	50.27
1987/88	51.90	50.80	49.60	51.00	51.80	51.10	52.30	51.10	52.20	51.50	51.70	51.90	52.09
1988/89	59.30	62.00	65.10	68.10	68.90	69.00	70.00	69.50	70.00	72.10	73.60	76.70	70.03
1989/90	78.80	69.00	63.60	63.10	66.10	62.80	63.00	63.00	64.00	62.50	63.70	65.10	65.50
1990/91	66.10	62.90	60.40	62.90	63.20	63.50	63.60	62.40	61.30	60.20	61.60	60.10	65.10
1991/92	59.90	58.00	59.20	61.20	62.00	60.00	59.60	60.00	59.20	62.30	61.90	59.00	60.50
1992/93	56.40	58.60	53.60	56.10	55.50	57.40	58.30	58.00	59.60	63.50	61.60	63.40	57.60
All hay:													
1983/84	78.10	72.70	71.20	71.20	74.70	76.80	75.10	76.70	76.60	78.70	79.40	79.80	75.80
1984/85	82.50	76.10	72.40	70.40	70.70	73.10	71.40	73.40	73.00	73.10	72.20	72.50	72.70
1985/86	80.80	70.20	67.90	65.20	67.10	67.50	64.30	65.40	65.80	66.70	67.10	66.20	67.60
1986/87	66.70	61.00	58.80	58.20	57.60	57.90	56.00	57.70	56.10	58.50	59.20	64.10	59.70
1987/88	71.70	62.90	61.20	62.70	64.10	64.20	61.10	63.20	62.80	64.60	67.20	71.40	65.00
1988/89	79.70	77.00	81.60	81.40	82.90	85.10	86.40	87.60	89.50	91.80	96.90	101.00	85.20
1989/90	100.00	90.20	83.40	81.60	85.70	83.20	83.20	83.50	84.90	85.70	87.50	95.00	85.40
1990/91	96.00	85.00	81.60	81.00	83.20	84.00	80.40	78.70	77.90	77.80	80.50	85.50	80.60
1991/92	81.10	75.20	71.80	70.80	69.80	68.50	68.20	68.90	68.70	71.10	69.90	70.90	71.20
1992/93	74.70	74.50	69.90	69.20	69.20	70.30	73.40	73.60	75.10	77.70	78.90	83.80	73.20

1/ Revised prices reported for mid-month. 2/ April 1993 data are preliminary. 3/ U.S. season average prices weighted by monthly marketings.

Source: Agricultural Prices, Agricultural Statistics Board, USDA.

Appendix table 23--Processed feeds: Quantity fed, 1984-92 1/ 2/

	1984	1985	1986	1987	1988	1989	1990	1991	1992 3/
----- 1,000 metric tons -----									
High protein:									
Oilseed meal--									
Soybean 4/	17,672	17,318	18,495	19,317	17,833	20,197	20,805	20,959	21,546
Cottonseed	1,595	1,379	1,026	1,442	1,431	1,239	1,470	1,583	1,429
Linseed	109	100	115	127	133	112	112	115	126
Peanut	112	159	103	109	117	96	96	105	136
Sunflower	307	313	269	381	233	271	302	400	482
Canola	139	120	204	219	322	342	353	586	475
Total	19,934	19,399	20,212	21,595	20,169	22,287	23,145	23,853	24,194
Animal proteins--									
Tankage and meat meal	2,523	2,540	2,395	2,457	2,328	2,320	2,292	2,305	2,350
Fishmeal and solubles	582	564	471	353	265	324	349	238	270
Milk products	386	374	398	411	405	418	398	409	415
Total	3,498	3,377	3,265	3,221	2,998	3,062	2,939	2,952	3,035
Grain protein feeds--									
Gluten feed and meal	1,876	1,055	1,165	1,484	1,289	218	164	767	740
Brewers' dried grains	142	135	146	120	107	106	109	108	108
Distillers' dried grains	807	873	805	1,035	947	1,027	1,014	850	770
Total	2,825	2,063	2,116	2,639	2,343	1,353	1,287	1,725	1,618
Other:									
Wheat millfeeds	5,084	5,278	5,714	5,652	5,717	5,617	5,987	6,210	6,915
Rice millfeeds	456	703	610	551	615	554	555	520	570
Dried and flaked	758	751	615	521	565	758	1,051	730	1,040
Alfalfa meal	868	777	589	554	565	570	353	268	260
Fats and oils	865	765	589	554	565	570	353	268	260
Meats, inedible	2,007	1,867	1,772	1,558	1,593	1,882	988	1,723	1,700
Miscellaneous byproduct feeds 5/	709	791	895	976	1,107	1,202	1,248	1,297	1,327
Total	10,857	10,702	11,056	10,856	11,002	11,391	12,340	11,671	12,892
Grand total	37,114	35,531	36,649	38,311	36,512	38,093	39,711	40,201	41,739

NA - Not available.

1/ Year beginning October. 2/ Adjusted for stocks, productions, foreign trade, and nonfeed uses where applicable. 3/ Forecast.

4/ Includes use in edible soy products and shipments to U.S. territories. 5/ Allowance for hominy feed, oat millfeeds, and screenings.

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